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Social marketing, nonformal education and participatory research in primary health care : urban rabies control in Guayaquil, Ecuador.

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SOCIAL MARKETING, NONFORMAL EDUCATION AND PARTICIPATORY RESEARCH IN PRIMARY HEALTH CARE:

Urban Rabies Control In Guayaquil, Ecuador.

A Dissertation Presented

by

Michael Frith

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Education

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D E D I C A T I O N

I dedicate this dissertation to Kathy, my best friend and fellow seeker, and to my sons Giles and Sebastian.

To all those who strive to make this world a happier and safer place for us all--especially my colleagues in Amherst, Ames and Guayaquil--I also dedicate this work.

A C K N O W L E D G E M E N T S

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ABSTRACT

SOCIAL MARKETING, NONFORMAL EDUCATION AND
PARTICIPATORY RESEARCH IN PRIMARY HEALTH CARE:
URBAN RABIES CONTROL IN GUAYAQUIL, ECUADOR

FEBRUARY, 1988

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In support of a 1985 Guayaquil anti-rabies campaign, practices selected from Social Marketing, Nonformal Education, and Participatory Research were combined in the Qforum, an "inverted" survey whose goal was creating social knowledge rather than capturing facts.

The Qforum questionnaire was "broadcast" to over 1,000 household learning groups by fourth, fifth and sixth grade schoolchildren from six Guayaquil schools. Families were to check multiple-choice answers to twelve highly-reactive questions related to knowledge, attitudes and practices concerning rabies control. A final essay question was designed to elicit a commitment by families to support the city-wide rabies control campaign. 87 percent of the forms were returned.

In this study, the philosophical constraints to merging parts of the three theoretical and practical sources of the Qforum are discussed. The content of forms, including

four evaluation questions, is analyzed. Estimated production and deployment costs are given, as well as suggestions for improving the Qforum.

The goal of the mass dog vaccination campaign, funded through WHO and the Pan-American Health Organization, was to halt a persistent urban rabies epidemic that had cost over 130 human lives. As funding was delayed, and allowances for educational support of the mass dog vaccination campaign would have been insufficient in any case, the bulk of the educational phase of the campaign had to be undertaken with severely limited resources.

Traditional barrio organizing and neighborhood "chats" to encourage participation would have been too expensive. The only low cost option was advertising through donated mass-media time. However, educational planners were not satisfied that citizens could be expected to commit themselves to action on the basis of public service announcements alone.

Costs were comparable to mass media educational methods, and the Qforum proved highly effective in transmitting multiple educational messages embedded in a process of interactive learning carried out simultaneously in independent family groups. It is felt that the Qforum would be applicable to AIDS education and to other diseases requiring education towards complex behavioral changes.

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C H A P T E R I

PARTICIPATION AGAINST RABIES

> Even though we are reaching the centenary of the discovery of rabies vaccine by Pasteur in 1886, this disease continues to be the most important Zoonosis in the Americas.
>
> Elmer Escobar Cifuentes, 1984

Rabies Control: A Technology in Transfer

Rabies still provides an insidious background of fear to the daily lives of millions of people around the world. Rabies can strike without warning--promising a certain, violent and agonizing death to those without access to effective treatment. A coveted family pet could as easily be transformed into an agent of death as could a mad dog loose in the streets.

Rabies in human beings has become predominantly a disease of the urban tropics. Rabies easily persists in the unnaturally dense dog populations induced by the recent explosive growth of industrial cities in the tropics. Europe under the industrial revolution experienced rabies epidemics in its swelling cities. While control based in European social formations has rendered rabies a rarity in the developed world, underfunded health systems in newly-developing countries are hard pressed to keep up with the control of rabies, or for that matter, all the other lethal side effects of urbanization.

The purpose of this study is to begin the process of welding together promising ideas from three social change paradigms--social marketing, nonformal education and participatory research--within a coherent philosophical framework aimed at indigenizing the formulation of rabies control strategies. Additionally, I will present the design, development and trial of an innovative participatory mass educational process that resulted from this fusion, tailored specifically to support a mass anti-rabies dog vaccination campaign in Guayaquil, Ecuador. In this first chapter I present some basic facts about rabies and give a general outline of the problems faced by rabies control programs. I then point to participation as a potentially ameliorating ingredient in the solution to problems in the transfer of rabies control technology from the industrialized world to the tropics. In the second chapter I focus on the specific problems facing the rabies control workers--particularly educators and communicators in Guayaquil, Ecuador. In the third chapter I set forth the parameters of a study. I describe it and examine its implications in the closing chapters.

Rabies, the Disease

Rabies disease is caused by the invasion of the rabies virus, a member of the Rhabdovirus family, into the nervous system of animals. All warm-blooded animals, including

humans, are susceptible. The virus is shed from the salivary glands and most often introduced to the victim through a bite. Biting is, of course, one of the most commonly observed violent behaviors in non-human victims of rabies. Other entry points for the saliva-borne virus include skin scratches and the mucous membranes. If the virus is present in sufficient quantity, it colonizes the nerves and eventually reaches the brain. Once in the brain it causes erratic and often violent behavior before inducing paralysis and death.

In human victims:

> Onset of clinical rabies in most patients is marked by excitatory manifestations including increasing sensitivity to tactile, visual or auditory stimuli...dramatic or gradual onset of painful spasmodic contractions of the muscles of [the throat].... Such episodes are terrifying and build up a state of hydrophobia...to the taste, smell, sound or sight of liquids, frequently including the patients own saliva.... Patients...may reach extremes of agitation and terror...may struggle frantically and may attack nearby persons...[but] between episodes of exitation...become calm and lucid, able to communicate and to realize what is happening.
>
> (Beran, 1981)

Other equally ghastly symptoms may be manifested before the victim dies of respiratory collapse or cardiac arrest. This horrible death is the inevitable outcome of clinical rabies. Unfortunately, according to Rodriguez-Torres (1984, p.3) and other observers, rabies is predominantly a childrens' disease.

Reservoir hosts--species wherein the virus is maintained from one generation to the next--are many and varied. On a global scale, wildlife such as foxes, raccoons, skunks and bats form the main reservoirs of the disease. Especially in cities of the southern tropics, however, the main reservoir of rabies is dogs. Rabies virus differentiates: Strains evolve to become specific to certain animal hosts. These strains can only be maintained in the corresponding host species. While a dog could act as a means of transferring, say, fox virus to humans (the dog, having been bitten by a fox, becomes an "aberrant host" to the fox strain of rabies virus), of far greater danger is the dog strain entering and being maintained in an endemic or persistent state in the dog population. When no rabies control measures are in effect, any dog might contract the disease and pass it on to humans and other animals.

Urban Rabies

The maintenance and spread of rabies in dogs is generally believed to be a function of social interaction among dogs. And the frequency of interaction is a function of population density and mobility. It follows that the denser and more mobile the dog population, the greater the likelihood that rabies can be maintained in an endemic state. In nature, wild canids--except in the case of localized packing--tend to be fairly well distributed in response to the

ecological support available to them: Territories are marked and dens are spaced apart. Domestic descendants of the wild dog, too, were historically as well dispersed as were the bands of hunting and gathering humans with whom they travelled. The advent of the city has meant that the population density of dogs has been induced to unnaturally high levels. And in many places--especially in the southern tropics--the high dog population density is coupled with little control over dog mobility and inter-communication. Like the humans who brought them, dogs have suffered the consequences of crowding in elevated rates of communicable diseases--not the least of which has been rabies.

Tropical Rabies.

> Rabies is endemic in all parts of the tropics. Almost half of the rabies cases in animals (47.1%) and almost all (99.9%) of human deaths occurred in the tropics, while 89.5% of post exposure treatments were administered to persons living in the tropics.
>
> (Acha and Arambulo, 1983)

Worldwide in 1982, 596 human deaths from rabies were reported by the World Health Organization in the World Survey of Rabies (1982), of which only five were reported from temperate countries. Since 1978 the reported figures on human deaths worldwide have not changed significantly, however rabies was reported to have spread to Melilla, the

Spanish colony in Morocco, and to Suriname in 1979, Hong Kong and Kuwait in 1980 and Uruguay in 1981.

The total number of reported human rabies cases in the Americas from 1970 to 1979 was 2,412, but the US and Canada accounted for only 20 cases (Escobar, 1980). Escobar reported 167,746 cases in dogs (of these Canada and the US accounted for 2,314 cases of dog rabies).

Rabies in Ecuador

Ecuador has consistently suffered the highest rate of human rabies in Latin America. The following data are typical of recent years:

TABLE 1.

HUMAN RABIES:

Rates per Million Inhabitants in Decreasing Order for Selected Countries of America - 1981.

Country	Cases	Rate per 1,000,000
ECUADOR	33	3.8
Honduras	10	2.6
El Salvador	10	2.0
Peru	29	1.6
Haiti	8	1.6
Paraguay	5	1.6
Brazil	139	1.1
Venezuela	16	1.1
Bolivia	6	1.1
Mexico	60	0.9
Colombia	27	0.9
Nicaragua	2	0.7

(Ministerio de Salud Publica, 1983a)

Rabies is widely believed to have originated in Africa and spread to Asia and the Americas in association with human migration. The first rabies cases were reported in Northern Ecuador in 1941. (Caicedo, 1983). By 1957, rabies had reached epidemic proportions in the provinces of Guayas, Pichincha, Azuay and Manabi--all possessing large urban developments. From then on, rabies has been in an endemic state punctuated by cyclical epidemics. During the ten-year period ending in 1979, the average number of human deaths from rabies reported in Ecuador was 19.6 (Caicedo, 1983). Between 1980 and 1982 the average annual total of people dying from rabies increased to 32.7 (44 died from rabies in 1982), a total of 98 cases--53% higher than any previous consecutive three-year period and 67% higher than the preceding ten-year average. The average number of rabies cases reported in dogs between 1980 and 1982 (1,358) was <u>double</u> that of the previous ten-year period. Clearly, the situation in Ecuador could only be characterized as an epidemic (an unexpectedly high rate of incidence).

<u>Rabies Control in the Urban Tropics</u>.

Rabies control, as widely practiced in the developing world, is a technology transferred lock-stock-and-barrel from the industrialized world. Like many other candidate technologies for transfer it has been crippled from the outset by ignorance of the social dimensions of highly com-

plex actions designed to accomplish desired outcomes. Long before Louis Pasteur demonstrated the first effective rabies vaccine over 100 years ago, rabies had been almost brought to a complete halt in Europe. Indirect social control measures were successfully employed in restricting the mobility of dogs. And even when dog vaccination later became a method of choice, the underlying social controls played a crucial--if less obvious--role in the achievement and maintenance of a rabies-free state.

Briefly stated, rabies control by vaccination can be summed up as a process wherein rabies vaccine and syringes are used to keep at least 80 per cent of a dog population immune from the disease. And sure enough, if the 80 per cent target is reached and sustained, the canine strain of rabies becomes locally extinct and the incidence of wildlife rabies strains passing through dogs into the human population becomes insignificant. But the application of rabies vaccine is only a dependent part (albeit crucial) of a bundle of actions which together make up the complete technology package that is rabies control. It should not be forgotten that in Europe the role of vaccine was that of a <u>coup de grâce</u> to a rabies that had been brought to a very low incidence by population and movement control.

In reality, a complex of organizational, social and legal forms supports the technical act of mass dog vaccin-

ation. Tragically, these underpinnings of success in controlling rabies in the developed world have become largely hidden and are more often than not overlooked in the export of rabies control technology to the urban tropics. Some of the attitudes and assumptions crucial to the past success of rabies control in developed nations--with or without vaccination--were:

* Every dog must have an owner
* Ownership can be formalized through the issue of dog licenses
* Owners can be held responsible for getting their dogs vaccinated
* Killing unowned dogs is both acceptable and imperative
* Dogs play no useful ecological role in the urban environment
* There will be no garbage or human excreta in the urban environment to support unowned dogs

These very basic but masked social assumptions behind rabies control in the industrialized world are set against very different formations, beliefs and attitudes that exist in societies host to imported rabies control technology. Mismatches are inevitable. A few of the myriad of counter-attitudes that have been encountered by agents of rabies technology transfer are:

> "Dogs, like all creatures, are our brothers and sisters. Do we own our brothers and sisters?"
>
> - Tuba City, Navajo Nation

"If I got a license for my dog, my name would be on a list the government could use for tracing suspected dissidents"
- Central America

"There's no way I'm going to carry my dog seven kilometers to the Centro de Salud during working hours"
- Ecuador

"Man who kills dog is man who kills man"
- Andros, Bahamas

"Without the dogs, we'd be completely overrun by rats"
- Sanitarian

"How do you collect garbage where they're no roads through an inhabited swamp--let alone a reliable map?"
- Guayaquil

The transfer of rabies control is bound by the same rules as any other technology. Dickson (1974) has demonstrated that technologies in transfer both need and tend to re-create in host cultures the social forms which originally gave rise to them. Seen in this light, the attempted transfer of European rabies control technology to the rest of the world is nothing short of cultural imperialism committed in ignorance. Do we really want to duplicate all the social structures that made rabies control of Europe possible two or three centuries ago? Do we have any idea what it would do (is doing?) to the social ecology of Ecuador, Ethiopia or Indonesia? It must follow that if the disruption, expense and possible failure of any technology is to be avoided, solutions for complex problems must be re-invented within the new social context--rabies control being no exception. One way to encourage the re-thinking of rabies control--or any other technology for that matter--is to foster local

participation in as many phases of its development, implementation and evaluation as possible.

Participation in Rabies Control

A movement to universalize the incorporation of participation in health care can be traced back to the Declaration of Alma-Ata, USSR in 1978 (World Health Organization, 1978) wherein the International Conference on Primary Health Care laid down the outlines of a program to become known as Health for All by the Year 2000 (WHO, 1980). As defined in Article V of the Declaration of Alma-Ata, Primary Health Care is, in part:

> ...essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination.
>
> (WHO, 1978, p.3)

The terms "practical", "socially acceptable", "universally accessible" and "afford" indicate some of the key predisposing factors to participation in a health care system which would foster "self-reliance" and "self-determination". Later, in Article VII, paragraph 5, the Declaration of Alma-Ata states that Primary Health Care:

> ...requires and promotes maximum community and individual self-reliance and participation in the planning, organization, operation and control of primary health care, making fullest use

> of local, national and other available resources; and to this end develops through appropriate education the ability of communities to participate...
>
> (WHO, 1978, p.4)

Again, picking out the additional operational words and phrases produces an even clearer picture of what the International Conference on Primary Care understood the essential relationship of participation with Primary Health Care to mean. The conference concluded that, to be workable, Primary Health Care must be:

* Practical
* Socially acceptable
* Universally accessible
* Affordable

And that both the prerequisites and ends of Primary Health Care are:

* Community control
* Participation in planning, organizing and operating the program
* Maximizing the use, first of local resources, then of national and outside resources
* Community and individual self-reliance

The means are identified as "appropriate education" (WHO, 1978, p.35). The conferees at Alma-Ata clearly had something other than the establishment of a formal educational system to underpin the development of community-based

Primary Health Care. Quite what form this education to foster self-reliance in health care would take was not apparent, however. The burden falls on the health educator to invent an educational approach "appropriate" to each situation--the principal ingredient being popular participation.

The substance and intent of the Declaration of Alma-Ata--including the policy of community participation--has spread through the various branches of the World Health Organization and has been established as the operating principle of the Veterinary Public Health Program of the Pan-American Health Organization (PAHO 1984). (PAHO is the arm of WHO responsible for rabies control in the Americas.)

A specific objective of WHO's Global Medium-Term Programme 13.10: Zoonoses is:

> ...to reduce progressively the incidence and prevalence of zoonoses and related foodborne diseases by application of national control programmes based on intersectoral cooperation, intercounty collaboration, application of appropriate technologies and on community participation.
> (WHO, 1984 p.3)

The "promotion of community participation" was identified as an area of intra-regional cooperative development in the Pan American Health Organization's Veterinary Public Health Program for the last half of the '80s (Pan American Health Organization, 1984).

The second of ten recommendations emerging from a late 1983 international coordinating meeting on urban rabies control held in Guayaquil reads (in translation):

> To develop the educational component in order to effect the necessary changes in the community and to gain its active participation in the development of programs.
> (Ministerio de Salud Publica, 1983a)

No mention was made of participation beyond the planning stage. And the planning document for the subsequent Guayaquil Pilot Rabies Control Program, Master Program for Rabies Control in Guayaquil City 1984: Scheme of Action. (Ministerio de Salud Publica, 1983b) makes no mention of participation whatsoever.

Why Participation?

Common sense tells us that participation, like education, is "a good thing". Common sense, of course, is an euphemism for "unchallenged assumption". The literature all the way from Alma-Ata on down to field level policy documents are no help in discerning why participation is a good thing: It's just an assumption. My equally reasonable assumption--based on observation--is that participation in rabies control usually begins and ends with people bringing their animals in for vaccination.

While I agree wholeheartedly with the proposition that wide public participation can contribute positively to the effectiveness of rabies control as well as many other social

development actions, I feel it is vital to understand why this is so. Unless we understand how participation works and what its effects are, I submit we can't make intelligent use of participation. Instead, it will be degraded either to empty rhetorical "boiler-plate" appendages to pro forma documents, or an ineffective tool of persuasion or coercion.

The effects of participation are better known (at least in education and development fields) than their cause. In constructing a psychological explanation for the function of participation in social change, Kurt Lewin says:

> ...both the mass approach [to social change] and the individual approach place the individual in a quasiprivate, psychologically isolated situation within himself and his own ideas. Although he may, physically, be part of a group listening to a lecture, for example, he finds himself in an "individual situation".
>
> (Lewin, 1973 p.374)

Lewin goes on to point out that the isolated individual recipient of a social change message may find difficulty in departing from established social standards of behavior. Groups, participating in interactive learning to change social behavior, form social microcosms. I agree with Lewin when he says:

> ...it is easier to change the ideology and social practice of a small group handled together than of single individuals.... If a change of sentiment of the group becomes apparent during the discussion, the individual will be more ready to come along.
>
> (Lewin, 1973, p.374)

But, I would argue against his assertion that a small group decision is solely "a decision about individual goals in a group setting." His conclusion, based on a reductionist approach to individual psychotherapy in group settings runs counter to the results of studies in other fields of group-centered endeavor. John Friedmann's (1981) "transactional planning" is just one of many good examples of social change originating in small group process.

Another example of a psychological explanation for the effectiveness of participation in social change is represented by the notion of ownership. Intimate involvement in the creation of social change confers on participants a sense of the change belonging to each individual, the group, and eventually perhaps to society at large. Investment of time and energy will tend to be greater if the results promise to serve participants' individual and collective perceived interests. Another notion supporting a theory of the working of participation is that the closer people are involved with a problem and the formulation of its solution, the more appropriate both the definition and solution will be to their needs and capacities. The concepts of interest and proximity are discussed more fully in Chapter III.

Among the effects and products of participation are (as we will see later) self-determination, empowerment and social change. So, to employ participation in rabies con-

trol is to advance the means and ends of Primary Health Care that include developing individual and community self-reliance, control and resources; to go beyond "band aid" health programs, and to help implant permanent processes of community social change.

The written doctrine of community participation in Primary Health care promulgated at Alma-Ata has barely survived the journey down to the local planning level. The message has evidently become diluted in the process and its meaning lost in disuse. In the next chapter I move away from policy to focus on the field and describe the problem of rabies and its control in Guayaquil, Ecuador.

C H A P T E R I I

RABIES CONTROL AND EDUCATION IN GUAYAQUIL

The New Initiative

Ecuador suffers the highest incidence of rabies in Latin America, and Guayaquil has long held the dubious honor of being the principal focus of rabies in Ecuador. In this chapter I illustrate some of the obstacles and opportunities for rabies control in Guayaquil. I present a brief history of the disease in Ecuador, and, supported by previously unpublished data, discuss the implications of recent past and current attempts at control. I then focus on plans for the recent and continuing rabies control program in Guayaquil and delineate some of the opportunities for participation--particularly in educational aspects of the program.

History

By 1948, barely a year after rabies was first reported entering Ecuador across its northern border, the crowded coastal port of Guayaquil provided fertile ground for the spread of the disease: the disease reaching epidemic proportions by the mid 'fifties. The rabies situation continues to be exacerbated by rapid growth: It has been estimated that the population increased by as much as a third since 1979. Today, over 1.5 million people live in Guayaquil.

TABLE 2.

HUMAN AND ANIMAL RABIES, GUAYAQUIL, ECUADOR.

1968 - 1985

Year	Animal Cases[1]	Human Cases	Rate/ 100,000
1968	271	2	0.32
1969	132	2	0.30
1970	264	11	1.57
1971	417	9	1.24
1972	392	7	0.93
1973	128	5	0.64
1974	240	3	0.35
1975	412	11	1.23
1976	222	2	0.21
1977	561	14	1.43
1978	302	0	0.00
1979	239	2	0.19
1980	209	6	0.54
1981	422	18	1.54
1982	445	11	0.90
1983	490	8	0.62
1984	411	8	0.57
1985	206	11	0.73
AVERAGES	320	7	0.74

[1]Includes a small number of additional cases from surrounding Guayas Province

Source: Sección Zoonosis, Guayas Public Health.

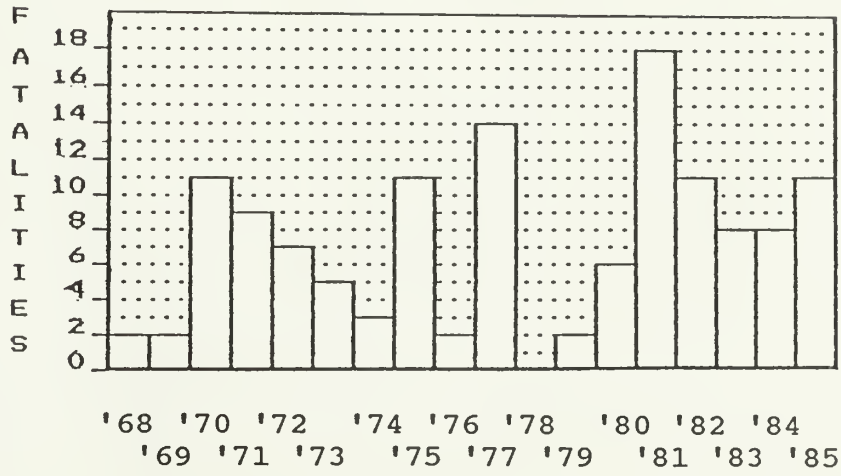
The incidence of rabies in animals had become so dangerous by the late '60s that the Ministry of Health undertook a mass vaccination of dogs in Guayaquil in February 1973. At the end of that campaign it was estimated that 60 per cent of the canine population had been immunized--well short of the 80 per cent needed for control. The low ini-

tial level of immunity achieved in this first campaign and the subsequent poor maintenance of vaccination in the dog population aggravated the rabies situation in the following years (Ministerio de Salud Publica, 1983a).

FIGURE 1.

HUMAN RABIES CASES BY YEAR,

GUAYAQUIL, ECUADOR, 1968 - 1985



Source: Sección Zoonosis, Guayas Public Health.

At the time it was decided to mount the rabies control campaign, the disease had been on the decline for at least three years. With no reliable figures on the incidence of rabies before 1968, one can only surmise that the disease had been evolving from the cyclical epidemic phase of the mid 'fifties, following its incursion into Guayaquil, into a more stable endemic state within the dog population. When

the after effects of the inadequate vaccination campaign of late 1972 took effect, rabies once again cycled wildly out of control. This can be seen more clearly when the annual human data (more reliable than animal) are graphed. (See Figure 1, above.)

While precise causes for the rabies situation in Guayaquil recrudescing from a steadily declining endemic state to a period of cyclical epidemic are not established, it is reasonable to suggest the following scenario:

1948 - Rabies enters a dog population with no native immunity to the disease

1948-1956 - Rabies steadily spreads through the dog population until a critical number of animals are simultaneously infected, when in

1957 - Epidemics begin to rage out of control and rabies is spread by animal bite to humans

1957-1968? - The disease cycles in epidemic episodes until sometime in the middle to late 60's, the dog population develops some immunity and the disease settles down to a steady endemic state. The incidence of human fatality drops to a very low level

1972-1973 - Up to 60 per cent of the dogs are vaccinated. Vaccination is not spatially uniform, and creates localized pockets of immunity that provide temporary barriers to the spread of the disease. At the same time, cam-

paign workers succeed in removing and destroying large numbers of the naturally immune dog population from the streets

1974 - The downward trend in human rabies cases continues

1975 - More than 90 percent of the dog population has turned over (mean life expectancy was found to be 2 years in 1985) since the inception of the '72 - '73 campaign, the number of dogs being vaccinated has dropped to a very low level and the dog population has largely lost its native resistance to rabies and the disease once again begins to spread rapidly from multiple foci

1975-1981 - Epidemics punctuate a generally increasing incidence trend. Human deaths increase in response to sporadic outbreaks of rabies in the dog population

1981 - The situation has become so dangerous that a second mass vaccination of dogs is planned

1982-1984 - Apparently having peaked in 1981, human deaths from rabies steadily decrease as the disease stabilizes in the dog population.

1985 - Another mass vaccination campaign is carried out. This time the target of 80 per cent of the dogs vaccinated is achieved.

1986 - A follow-up vaccination is undertaken. High-risk dog populations are targeted on the basis of ecological study findings.

The Pilot Rabies Control Program in Guayaquil

In 1983 the Ecuadorian Ministry of Health was granted $216,667 by a group consisting of Agfund, Radda Barnen and World Health Organization (WHO) for rabies control in Guayaquil. It was to parallel two other pilot projects funded for Tunisia and Sri Lanka and would be administered by Pan American Health Organization (PAHO) as the regional representative of WHO. It was to be a two-year program starting in October 1983, but, as a result of inexplicable delays in getting the funds to the field, vaccination did not start until late 1985--and then with resources drastically below the level expected.

Goals for the Guayaquil campaign were:

> Short Term: To minimize human rabies and reduce the incidence in dogs to 10 per 100,000 [the 1981 rate was estimated to exceed 100/100,000] within two years by vaccinating 80 percent of the dog population.
> Long Term: To maintain the absence of rabies from the human population and reduce the incidence in dogs to a level of 1 in 100,000 within three years by annually vaccinating 25 per cent of the canine population.
>
> (Ministerio de Salud Publica, 1983, my note.)

Early in the planning of the three regional pilot rabies control programs, WHO decided that dog ecology studies should be undertaken to gain an understanding of the size and structure of the dog populations in the target areas. Dr George Beran, a member of the WHO Expert Committee on Rabies based at the Veterinary College of Iowa State

University, and I were selected to conduct ecology studies in Guayaquil.

The principal goals for the Guayaquil urban dog ecology study were:

1. To collect and analyze data on the population structure and dynamics of the dogs in greater Guayaquil. Human demographic data related to the distribution of dogs was to be included, as was physical environmental ecological data.

2. To provide local campaign planners with baseline information on dog population size, distribution and other factors that might contribute to the success of the program. Information related to dog and human population distribution linkages and on other relationships between the human and canine populations were to be included

3. To evaluate the degree to which these ecological data were incorporated into the implementation of the vaccination campaign, and to gauge the overall usefulness of these data.

In addition--and this reflected our mutual interests in the human social dimensions of rabies and its control--we set ourselves the goal of exploring and acting on any educational and promotional opportunities presented by the control program in Guayaquil. This provided the arena for the research documented in the present work.

The general method chosen in consultation with the campaign planners in Guayaquil was a random survey of approximately 2,000 households. A portable Kaypro 2 computer running dBase II was used to generate the questionnaires, develop entry and database management programs and provide summaries of data. Our first field work started in mid March 1985 and concluded in mid June of that year.

Educational Support for Rabies Control in Guayaquil

Early recognition of the importance of education in mobilizing public support for the pilot rabies control program was, as I pointed out in Chapter I, made by the Guayas Province Directorate of Public Health. Long before any of the promised international funds had reached Ecuador two key staff had been seconded to the pilot program--Dr Fausto Caicedo Gomez, D.V.M., head of the Zoonosis Section and Victor Tapia Coradino, M.Ed., health education chief. Prior to our arrival as WHO consultants, Dr Caicedo and Victor Tapia were able to assemble historical data on rabies in Guayaquil, develop and test a general-purpose rabies training module (Tapia, 1985) and to prepare the ground for the complex inter-ministerial and inter-governmental coordination required for the campaign. Once we were in Guayaquil, Drs Caicedo and Beran focused on planning the technical, epidemiological and ecological aspects. Victor Tapia and I were able to focus our attention more on the

educational support and field organizational aspects of the upcoming survey and campaign.

The first task for the team was to collaborate in developing the survey questionnaire. The bulk of this questionnaire was aimed at collecting demographic information on each family and ecological data on each household's pets (we included cats as an afterthought--there was no literature on urban cat ecology), but we included questions on the knowledge and attitudes of respondents to rabies and rabies control cross-referenced to their mass-media habits. These latter helped with the development of targeted messages in a subsequent mass-media education campaign.

It was apparent from the outset that delays in funding would have a severe impact on the educational activities planned for the pilot program. Even if funds were to arrive in time, early PAHO planning documents on which funding was allocated did not include a line item for staffing or supplying an education campaign! The campaign might have to proceed without the fifteen vehicles (two to be equipped for audio-visual education), extra staff and equipment promised. The only things on hand were 200,000 doses of vaccine from PAHO and needles and syringes from local public health supplies. The expiry date of the vaccine was drawing uncomfortably close. As it appeared likely that the mass vaccination campaign would have to proceed without the $200,000, it

seemed prudent to tailor the educational activities to function on a no- or low-cost basis. Non-formal and community educators will recognize the potential benefits of this funding failure in forcing a self-sufficient approach.

The entire rabies control effort was conceptualized within the framework of social marketing (see Chapter IV), thus all the communication, organizational and educational pieces were designed to support each other. In order to optimize educational support activities, it was decided that, wherever possible, promotion and education would incorporate two related principles: multiplication and interaction. The idea behind multiplication, a technique routinely used by rural health educators in Ecuador and frequently employed by Victor Tapia in urban health education campaigns, is that every recipient of health educational messages is a potential teacher. Thus every learner is not only taught the content of the health message but is also prepared as a teacher of that message--hence "multiplication". The rabies education module developed by Tapia, and mentioned above, is therefore both a learning and teaching tool. By adopting interaction as a guiding principle, we would attempt to tap the power of an interactive learning environment to increase not only the quantity of learning achieved but also its personal and situational relevance to each participant in the learning process.

These principles were applied to the design of the mass media plan for the social marketing program. An internal planning document reads (in part and translated):

Educational Media Plan

1. DIRECT: a. Application and distribution of the Rabies Module to school teachers, inspectors, campaign workers and other potential multipliers.
   b. Interactive questionnaire to all fourth, fifth and sixth grade students.

2. NEWSPAPERS: Contests requiring interaction. Surveys to be carried out by readers in their neighborhoods.

3. RADIO: a. A contest to write the best dramatization on rabies to be run and subsequently produced on the most popular radio station.
   b. Dissemination of the winning drama as a public service announcement to all the other radio stations.
   c. Contest to write the best campaign slogans to be used wherever appropriate in campaign materials.

4. TELEVISION: a. Joint promotion with the weakest TV channel (then embarking on a drive to increase market share).
   b. PSA development contest.
   c. Poster design contest.

5. OPEN AIR (Billboards, etc.): Production, distribution and posting of winning poster designs from the TV contest.

Buried in the above memorandum is the item, "1.b. Interactive questionnaire to all fourth, fifth and sixth grade students", which provided the impetus for this study. By abandoning the traditional social science survey goals, and designing a questionnaire to induce group participatory

learning in the family circle, it was hoped that the quality and quantity of learning and action about/against rabies would be maximized. Such a questionnaire was drawn up and given trial in June, 1985. This trial is presented later in case study form.

Guayaquil Rabies Control Education Needs in Summary

We have seen that rabies had reached epidemic proportions in Guayaquil in the 'fifties and that a control campaign in the 'seventies had had mixed results, at best. The current control campaign would have to achieve not only greater initial penetration in dog vaccination, but immunity would also have to be maintained at a high level for rabies to be brought permanently under control in Guayaquil.

The two sides of rabies control--biotechnical and sociological--would have to work in tandem. It was not enough merely to possess the tools--vaccine and needles--of rabies immunization: Motivation and organization were needed to apply the biotechnical tools effectively and consistently, especially in a large city like Guayaquil. Education can be a powerful motivational force if tied into the needs of both program and learners. In Guayaquil, participation and interaction were the process goals for the mass media and educational components of the 1985-86 social marketing campaign aimed at bringing rabies under permanent control.

C H A P T E R I I I

THE SURVEY INVERTED

Introduction

Social change may be an universal force, but the forms it takes are many and varied. They run the gamut from revolution by force of arms or coercion, to accidental social evolution through permissivity and laissez-faire policy.

Lying somewhere between violence and inaction are some intentional, incremental social change strategies. The more democratic approaches to fostering orderly change involve some form of two-way communication between the changers and the changed (should they be different parties). This two-way channel is most effective when elements of "education" and "participation" are closely coupled. Social Marketing, Nonformal Education and Participatory Research are currently among the most widely used of methods of bringing about peaceful and productive change using close-coupled communication and decision linkages. It should be briefly noted that at least these three approaches are in sharp distinction to the social engineering approach. The latter usually involves education in support of change, but participation is more often than not limited to the passive divulging of survey information to planners and subsequent compliance

with requests (or demands) for some action. In this case, the two channels of communication--education and participation--are decoupled by time. Neither can help to guide the other without the corrective feedback inherent in coupled two-way communication.

The development in mutual isolation of Social Marketing, Nonformal Education and Participatory Research has not been without problem. While the unlikelihood must be recognized that a single approach is ever going to solve all the World's (social change) problems, a familiarity with the three strategies discussed here breeds recognition that many of the internal shortcomings of each technique could be ameliorated by fusion with or adoption of ideas from the other two. This is a cross-disciplinary problem, however, and practitioners in each field tend to feel that their chosen social change approach is sufficient in itself. Worse than this, some adherents regard the other two strategies with suspicion. These three approaches have their origins in quite different schools of thought, but, as I show later, the philosophical differences are more perceived than real.

In this study I show that, with some adjustment or reorientation, all three methods for bringing about intentional social change can, in fact, fit within a single philosophical framework. I will further show that, if justified within a framework of pragmatism and measured against "qual-

ity of life" means and ends, principles and techniques drawn from these three powerful social change paradigms can be blended into a consistent strategy. To illustrate this point, I use a case study based on such an attempt in the context of rabies control education in Guayaquil.

Hypotheses and Limitations

Since this study is as much addressed to public health veterinarians, doctors and other workers primarily educated to a natural scientific world view as it is to educators and other social scientists, I feel it is important to justify the approach taken. This study was in no way intended to follow the natural scientific method. Sub-hypotheses are several, variables are too many, and none can be held constant, and the "experiment" cannot be replicated under identical circumstances. Nevertheless, I would argue that because it was done, positive action was taken and knowledge increased.

Perhaps of particular interest to the natural scientifically-inclined is the fact that many of the theoretical issues brought up by this study are central to an undercurrent in the social sciences towards abandoning the parody of natural science in the study of human affairs. Human beings do not behave predictably and the application of pseudo-scientific method in sociology has seldom impressed the

physical scientist nor often provided a satisfactory solution to any but the simplest of human problems. Justifiable charges of "unscientific" method leveled at social scientists have more often resulted in contortionism than in the construction of a distinct paradigm of knowledge creation justified on the pragmatic grounds "that it works better" and on ethical and moral grounds "that it is good and just".

For the died-in-the-wool doubter, I invoke a business example: The "bottom line" rule means that businessmen seldom repeat an unprofitable action. And one of the most frequently-invoked methods for change or innovation in business is sometimes known as "fuzzy planning". Whatever the rubric, its principal premise is that there is never really enough information on which to base plans. So, based on admittedly inadequate information, something is done, and in its doing more information is generated. Analyzed and added to the original information, the new knowledge forms the basis for another round of action and data collection, and so on... This study was conducted in a similar spirit, and its product--the product of a single action/reflection cycle--is knowledge that could guide a more refined approach.

While the education and communication process that emerges from this study was not intended to have the accurate predictive power of a product of controlled experimen-

tal research (being more a catalytic agent than an instrument of control) I submit that its re-application in the light of this experience will, under special circumstances, raise the quality and quantity of learning.

My main hypothesis is that it is possible to overturn the usual data-capture objectives of a social survey, replace them with learning objectives and create a powerful learning medium. This is only possible when the survey is subverted according to the rules of interest and value I spell out in Chapter IV.

The study was carried out against a "noisy" background of similar messages being delivered by other mass media. While data collected at the time of initial implementation indicated that penetration was high, parallel messages, disseminated through other mass media channels during the year that elapsed before it was possible to undertake a summative study, blanketed a definitive evaluation.

With the exception of data collected through a carefully randomized ecology survey for WHO, none of the quantitative data presented in the case study should be taken too seriously. The children who responded to the school questionnaire forms were to an unknown extent self-selected, and controls were not used. The forms (as we shall see) were filled out in an atmosphere of learning, and most responses reflect more what was being learned than what was known

prior to their implementation. A "reality check" with a dozen families chosen at random did, however, show that the demographic information given by the children was reasonably accurate.

The preceding admission of bias and statistical inaccuracy might seem a little strange in the present context. However, it is illustrative of the central paradox of the study. The normal survey data capture goals were intentionally replaced with learning goals. Thus I would be deceiving myself to claim that much of the data on the survey forms represents anything other than a reflection of knowledge at some undeterminable point of change.

A final limitation I would place on the utility of the Questionnaire Forum (as I have labeled the learning questionnaire for distribution through school children) <u>as assayed in Guayaquil</u> is to its transferability. Every facet of its development and use was dictated by immediate local factors. Learning goals were determined on the basis of a needs assessment carried out at a specific point in an ongoing mass-education campaign. Doubtless if one were to repeat the process in Guayaquil today, the learning goals would be quite different. If one were to employ the process in a different community or worse, a different country, the whole shape of the Questionnaire Forum would have to be redrawn to reflect not only the different learning goals but

also many cultural, logistic and other factors. At a deeper level, the process taken as a whole and including an assessment of the social environment, may be transferable, but perhaps the only universal elements will be philosophical.

Organization of the Study

This study is divided into four parts:

1. The problem setting. Rabies, both in general and in the particular instance of its endemnicity and control in Ecuador, has been described in Chapters I and II. Appropriate literature sources have been searched for references to the importance and urgency of rabies control and the incorporation of popular participation into the control process. Previously unpublished data derived from an extensive canine, feline and human ecology study undertaken for WHO by the author and others (Beran and Frith, 1986) is used to give scale to the problems facing rabies control program officials in Guayaquil.

2. Theoretical and practical issues. In Chapter IV, each of the three most promising paradigms for intentional, incremental social change through education incorporating participation--Social Marketing, Nonformal Education and Critical Theory (Participatory Research)--are described. Theoretical principles which have bearing both on the rabies educational problem at hand and on some of the philosophical

differences between practitioners of the three social change strategies will be examined in some detail. Finally in Chapter IV, selected practices drawn from each of the three are described and fitted together in a single framework. An example of an application of this fusion is introduced in the form of an "inverted" survey--a survey whose goals are the creation of knowledge rather than the capture of facts.

3. Case study. A case study in the design, implementation and evaluation of this innovative approach to mass participatory education (here referred to as the Questionnaire Forum or Qforum) is documented in Chapters V and VI. The case study is supported by additional relevant unpublished data derived from the ecological survey of Guayaquil.

4. Discussion. The overall attempt to reconcile apparent differences between Social Marketing, Nonformal Education and Participatory Research and the combination of strategies employed in the case study are critically examined. Several weaknesses, including the absence of a practical quality of life means and ends analytical measure and the apparent potential for cooptation and abuse of the specific strategy under discussion, are pinpointed and discussed.

C H A P T E R I V

PRAXIS AND RABIES CONTROL

Theory

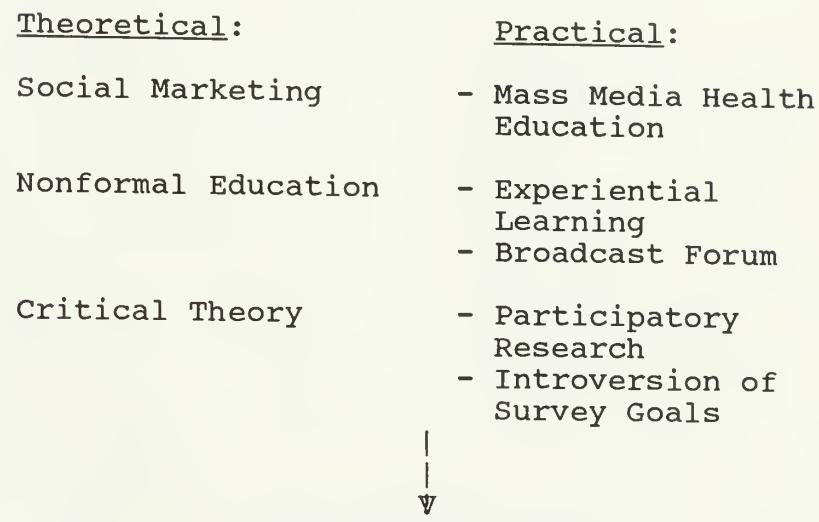
The notion of using a questionnaire as the carrier of process and message in mass participatory learning emerged from the amalgamation of principles drawn from three primary theoretical contexts: Social Marketing (Kotler and Zaltman, 1971; Sirgy, Morris and Samli, 1985; and Manoff, 1985), Nonformal Education (Freire, 1970; Coombs, Prosser and Ahmed, 1974; Kindervatter, 1979; and Reed and Loughran, 1984) and Critical Theory (Habermas, 1968 and 1970; and Mezirow, 1978 and 1981). The Questionnaire Forum (Qforum) process combines five strategies derived from practical applications in these three fields: mass media health education, experiential learning, the broadcast forum, participation in knowledge creation, and inverting the questionnaire survey to function as vehicle for educational process.

In this chapter I will discuss the theoretical and practical parentage of the components which add up to the Qforum process. I will describe them and suggest how they could fit together philosophically and practically to form a powerful and responsive process tool for intentional, incremental mass social change, freed of some of the less desirable characteristics of mass-education.

Figure 2 summarizes the major theoretical and practical roots of the Qforum:

FIGURE 2

ORIGINS OF THE QUESTIONNAIRE FORUM



Social Marketing

Philip Kotler and Gerald Zaltman introduced and defined social marketing, "an approach to planned social change", over 17 years ago:

> Social marketing is the design, implementation, and control of programs calculated to influence the acceptability of social ideas and involving considerations of product planning, pricing, communication, distribution, and marketing research.
>
> (Kotler and Zaltman, 1971, p.5)

Social marketing has subsequently been used in family planning, energy conservation, nutrition, anti-smoking, substance abuse, driving safety (Fox and Kotler, 1980) and

sign vandalism (K. Frith, 1985). Manoff (1985) narrows the focus of social marketing to public health and cites cases from Bangladesh and Costa Rica (family planning); Nicaragua, Honduras and The Gambia (oral rehydration therapy); Indonesia, Tanzania, Ecuador, New Mexico (U.S.A.), Korea and India (nutrition); Brazil and Trinidad and Tobago (breast-feeding); and Norway (anti-smoking).

However beneficial the results may have been, the application of commercially-derived marketing techniques to social change has apparently raised hackles not only among the general public but also in professional ranks. Laczniak, Lusch and Murphy (1979) found that samples of ethicians, economic historians, social psychologists and marketing practitioners generally agreed that, while using marketing techniques to diffuse social issues was a "step forward", it raised the specter of manipulation and other ethical problems. Their concern was that social marketing would create a public perception of marketers as "'neo-propagandists'...hardly a positive public badge for the discipline of marketing to wear."(p.34) A more constructive commentary on social marketing nevertheless goes as far as to suggest:

> Considering the negative image that commercial marketing has in many people's minds, a social campaign designer might best avoid using the term <u>marketing</u> at all and simply apply what he/she has learned from that field.
>
> (Solomon, 1981, p.291)

Much of the embarrassment felt by social and traditional marketers has, I feel, resulted from the lack of a clear definition and epistemology for social marketing. For example, it has been pointed out that the ethicizing of Laczniak et al. was flawed by their confusing social marketing with non-profit organization marketing and mistakenly using police department and political marketing as examples of social marketing (Fox and Kotler, 1980). The considerable opposition from marketing orthodoxy on the grounds that social marketing isn't "real" marketing (Laczniak and Michie, 1979) has also been damaging. Social marketing, still in its infancy, has yet to be adequately defined within a coherent philosophical framework.

The retreat by public and profession alike from the term (if not the perpetration of) "social marketing" has a root in a philosophical dissonance between the abstractions of economic theory, on the one hand, and a pragmatic social reality on the other. From the standpoint of the public, using the four "P's" of marketing (Product, Price, Place and Promotion) as the basis for controlling the demand, allocation and distribution of social well-being smacks of mechanist manipulation out of keeping with human values. And many orthodox marketers have instinctively (and correctly) rejected the very possibility of treating "social change" as a commodity for transaction in the marketplace.

In my opinion, the ethics issue has been thrown up as a smoke screen by some marketers who may sense the imminent exposure of a chink in their economic theoretical armor. The "poverty of modern economics is accounted for in its outdated epistemology and method" derived from logical positivism, according to human economist Mark Lutz (1982). I have shown elsewhere (Frith, 1983a) that the social sciences based on logical positivism do not allow for intentional social change--only the replication of existing social forms. Ultimately based on observable and measurable "facts" and "events", logical positivism (and through it economics) is incapable of encompassing the values implicit in social change. Thus most economic and marketing theorists class the values implicit in social change as unfactual ideology to be excluded from scientific discussion. It is not surprising, then, that traditional marketers may be discomfited by an upstart school within their ranks that challenges them to account for the "external" values of social change--a task that necessitates the abandonment of the very foundation of their belief system.

The real issue, then, is not ethics but values. In crude terms, while economic values can almost always be represented in dollars (not forgetting that time equals money, and so on), social or human values are impossible to represent in the cold currency of economics.

Marketing professionals Sirgy, Morris and Samli (1985) have laid the groundwork for the development of a new epistemological basis for social marketing. By proposing a quality of life theory based on John Dewey's ethical empirical naturalism as an alternative to marketing's positivistic theory of market demand, these marketers have pointed to the foundations for a broad framework for raising the values of humankind as a whole for consideration alongside the narrow concerns of the financial world. If QOL analysis proves useful as a tool for socially-sensitive commercial product and service marketing, it will survive in the "marketplace of ideas" and presage a more powerful scientific paradigm for economics.

The central concept in the quality of life (QOL) theory of social marketing is optimization of a goal hierarchy in means-ends paths leading to a super-ordinate goal (Sirgy, Morris and Samli, 1985, p.215). Their QOL means and/or ends groupings can include, political, technological, health and safety, educational, consumption, organizational and social as well as economic. In their scheme, all means are to be analyzed at individual, group and societal levels. Conflicts among means are to be minimized at all levels of analysis in achieving an end, no matter where in the quality of life matrix the end is to be realized.

On the face of it, a harmless enough concept, QOL theory could nevertheless bring revolution to the arena of economics. In one stroke, Sirgy, Morris and Samli have proposed a social scientific framework centered in the exchange-of-goods field but capable of explaining increasingly embarrassing "externalities" of economics like the values of social change and the value of the environment. Given public alarm at the perceived deterioration of the social and natural environment at the hands of "The Economy"--an apparently uncontrollable force--coupled with the disdain of marketing traditionalists for social values aggravated by their intrinsically inadequate economic marketing epistemology, it would seem likely that serious marketers of social change will be forced to adopt and develop QOL or some other divergent theory. The subsequent impact on the marketing field and, through it, economics, could be rapid: Marketing, an inherently pragmatic field, has historically distinguished itself by quickly adopting workable innovations. Thus the dissonance between two irreconcilable epistemologies within the field of marketing may eventually lead to the abandonment of logical positivism by at least this social science: According to Kuhn's (1962) analysis, one characteristic of a successfully emerging scientific paradigm is its capacity to subsume and expand explanation beyond its predecessor.

Richard Manoff, a leading consulting practitioner of social marketing, has made a considerable counterbalancing contribution to the dialectic between marketing theory and social marketing practice in his book, Social Marketing: New Imperative for Public Health. (1985). Deliberately denying the values implicit in marketing ("a neutral system"), he lays down a comprehensive practical framework for social marketing in the promotion of public health, defining it as:

> ...a strategy for translating scientific findings about health and nutrition into education and action programs adopted from methodologies of commercial marketing.
>
> (Manoff, 1985 p.36)

The components of Manoff's action framework (he calls them disciplines) roughly conform to his sequential steps in the development, implementation and evaluation of an ideal social marketing campaign:

> 1. Identify the health problems and the marketing and message actions required for their solution.
>
> 2. Establish priorities, select affordable efforts, and set up a deferred schedule for all others.
>
> 3. Analyze the distinct marketing/message activities needed for each problem/solution.
>
> 4. Pinpoint the target audience for each marketing/message action.
>
> 5. Conduct the necessary research on each marketing/message concept to determine current target audience attitudes and uncover potential resistance points.

6. Establish objectives for each target group and each marketing/message action.

7. Design the marketing/message actions.

8. Test the marketing/message actions for acceptability, implementation, comprehension, believability, motivation and conviction.

9. Revise and retest the marketing/message actions as necessary.

10. Construct the marketing/distribution and message/media patterns to achieve maximum target audience reach and message frequency.

11. Coordinate and harmonize with all ongoing related programs.

12. Track the impact of each marketing/message action and modify according to findings.

(Manoff, 1985, p.42)

Resistance points (item 5) are defined as social, cultural, economic, religious, 'ignorance' and other "inhibitors mitigating against the adoption of the desired behavioral change" (p. 107). In Sirgy's terms, Manoff's resistance points could be QOL means negatively affected in the attainment of QOL ends. And Manoff's description of hierarchies of these inhibitors parallel in some ways Sirgy's analytical levels of QOL theory. Resistance points could offer the chief portal of entry for QOL analysis into Manoff's social marketing framework.

Besides presenting a useful overall practical framework within which to plan, implement and evaluate deliberate social change, social marketing contributes specific prin-

ciples of mass media health education to the Qforum process. They will be detailed later in this Chapter.

Nonformal Education

If education can be described as:

> any overt, organized effort to influence individuals or groups that improves the quality of life.
>
> (Reed and Loughran, 1984 p.22)

then nonformal education (NFE) is the fostering of QOL-enhancing learning outside the formal school system--a process that could yield to Sirgy's (1985) QOL analysis. In origin, NFE is a form of participatory education that grew out of adult learning theory. Nonformal education, more commonly known as community education (LeTarte and Minzey, 1972; Loughran, 1984) in the United States, is closely related to lifelong learning (Peterson, 1979; Frith and Reed, 1982). Phillip Coombs defined NFE as:

> Any organized educational activity outside the formal system--whether operating separately or as an important feature of some broader activity--that is intended to serve some identifiable learning clientele and learning objective.
>
> (Coombs, 1973, p.11)

One of nonformal education's most distinguished departures from formal education lies in its insistence on an environment of explicit values as a prerequisite to learning. The values implicit in formal education have been conveniently contrasted with the values of nonformal educ-

ation along eleven continua in an analytical scale devised by Horace Reed in a Lifelong Learning Manual: Training for Effective Education in Organizations. (Frith and Reed, 1982, also in Giladi and Reed, 1985).

An early pioneer of NFE, Brazilian educator Paulo Freire (1968), originally saw the deeper purpose in non-formal education as a problem-solving, consciousness-raising strategy for bottom-up social change. As Kindervatter (1979) pointed out, formal education has been a "shaky vehicle" for social change--its traditional function being "to transmit cultural values and perpetuate the existing socio-economic order"(p.8). I have shown how the mechanism for the reproduction of industrial society--Toffler's (1980) "covert curriculum"--is invisibly embedded in the institutional structure of education (Frith, 1983b).

Thomas Labelle laid down four principles for nonformal education as a social change strategy:

1. Understanding the needs of the client population;
2. involving clients in their own learning;
3. facilitating the transfer and application of new behaviors to the environments;
4. attending to incentives both internal and external to the program.

(LaBelle, 1976, p.196)

The similarity to Manoff's "disciplines" of social marketing are striking. However LaBelle's inclusion of "involving clients in their own learning" makes explicit a principle which is only hinted at by Manoff. Participation in the learning process is a key principle of nonformal education. In a mass-media setting, "participation in the learning process" could take the form of client participation in message development (Comings, 1979) or, as discussed below, in the process of broadcast forums.

Nonformal education has been used to address a wide range of educational and social change goals. Early on, NFE was mostly conceived of as a tool for combined literacy and consciousness raising efforts, but the process has since been adapted to catalyse community development, health improvement, agricultural and small-business entrepreneurial activities, mostly in Latin America, Africa, Indonesia and Southeast Asia.

In common with other successful forms of persuasion and social change motivation, Nonformal education has received its share of criticism. NFE practitioners have been charged with perverting it to the maintenance of the social status quo and otherwise devising masked methods of manipulation. Whether or not subversion or reaction are the goals, the generous supply of seeds of liberation carried in NFE's participatory process will determine the outcome.

Later in this study I will describe experiential learning and the the mass media broadcast forum as perhaps the chief contributions of NFE to the Qforum process.

Critical Theory and Participatory Research

Critical theory challenges, among other things, the validity of knowledge generated within the confines of the predominant positivist paradigm of social science. It challenges social scientists to examine the following questions about the knowledge generated in their research:

- For whom, by whom and for what purpose has the knowledge been created? Critical theorists argue that the products of mainstream "social scientism" are created for the use of dominant classes, through remote, "objective", and professional experts in order to control society within an established order.

- How was the knowledge arrived at? Was it "mined" using extractive instruments from objectified "subjects" or was it created by or with the people studying and changing their own social reality?

- What kind of knowledge is it? Is it abstract numerical data interpretable only by trained experts within a framework of fixed reality; or is it qualitative and interpretive, leading to understanding among the researched, or (better yet) is it socially emancipating knowledge arising from the action/reflection (praxis) of actor/researchers

working to change their social reality in their own interests?

Peter Park (1982) challenges social science to move away from universalistic theories, "always local views projected large" (p.21) and applied uniformly without regard for variations in local constructs of social reality, toward "returning science back to the people[s] from whom it once arose." (p.29) "Indigenization", would restore the relevance and power of social science to localities of origin and counter the massification of social control. Sociology must, says Park, also produce

> ...knowledge and practice that will bring about a new order in which domination is replaced by participation.
>
> (Park, 1982, p.31)

Fay (1975) and Connerton (1980) have traced the origins of critical theory in the thirties, its re-emergence in the sixties--most notably in the work of Herbert Marcuse (1966)--and outlined its current development. Jurgen Habermas (1970, 1973) is currently the most prominent neo-Marxist philosophers of the Frankfort School dealing with critical theory. Critical sociology, based on Habermas' version of critical theory has spurred the development of Participatory Research (Hall, 1981 and 1984; Tandon, 1981; Dilts, 1983; and Brown, 1985). A definition published in the Harvard Education Review

> Participatory research is a people-centered learning process that can transform local patterns of awareness, equalize distributions of power and resources, and increase participation in development activity.
>
> (Brown, 1985, p.70)

shows participatory research making inroads into the thinking of establishment education through the social development education context. Perhaps no one has done more than Jack Mezirow (1978, 1981, and 1985) to bring the power of participatory research to bear in the realization of adult education. In particular his conceptualization of the creation of critical consciousness as "perspective transformation" (1978), echoed Freire's (1970) "concientization" and provided a permanent linkage between nonformal education and participatory research.

There exists, however, a certain unease among some nonformal and adult educators at the prospects of embracing participatory research lock-stock-and-barrel. NFE theory is philosophically pragmatic in nature--one of its main inspirations being John Dewey's vision of democratic education. Participatory research, on the other hand, has been based on the Marxist ideology of historical materialism and bound to the methodological rigidity of dialectics. The result is that it carries its own "covert curriculum". The hidden universalistic message of participatory research is the inevitable need for struggle against oppressor classes. The discomfort of educators with the ideological loading of

participatory research has been manifested in the construction of participatory research models omitting references to Marxist source materials (e.g. Marshall, 1981) and in attempts to disassociate by adopting new terminology--my own "immediate (unmediated) research" (Frith, 1983a) and Budd Hall's "non-formal education research" (1984, p.297).

Towards the relief of this discomfort with the roots of participatory research and to preserve its appeal to non-Marxist social scientists, I have shown previously (Frith, 1983), with the help of Oquist's (1977) work, that the epistemology of participatory research as action research can be fully and usefully described within a framework of pragmatism--a wider, less constricting and therefore more powerful explanatory basis than dialectical materialism.

Abandoning the Marxist baggage of class struggle as the single socio-historical analysis and dialectical materialism as an anti-evolutionary deterministic template for social change in no way weakens the power of a participatory research process consisting of:

<u>People</u>, simultaneously transforming their social reality and creating knowledge through their reflection on themselves and their conditions; and, through their action in improving themselves, learning and realizing their power, thus <u>changing their social situation</u>.

Practice

The Questionnaire Forum process draws on principles from social marketing, nonformal education and participatory research. Some of these principles will be discussed below.

Mass Media Health Education

The mass media are the principal delivery channels for public health education in Manoff's scheme of social marketing. As reproduced earlier in this chapter, Manoff's social marketing action framework provides convenient steps in the preparation, delivery and evaluation of public health education campaigns.

Not the best developed concept in Manoff's scheme is that of audience participation in the creation of messages. By advocating in-depth interviews and focus group meetings with members of the target audiences, he does acknowledge the importance of gaining their input. But he does not go as far as Katherine Frith (1985), who found that direct participation of members of the target audience in the development of messages in an anti-sign-vandalism campaign not only sharpened the relevance of the messages, but also spun off spontaneous direct social action. Other campaigns that incorporated some measure of learner/audience participation in message development are described by Hargreaves (1980), Palmer (1981) and McAlister (1981). Comings (1979) describes participatory message development in print (foto-

novela), videotape, film and radio. With the exception of his radio case--the celebrated Tabacundo experience in Ecuador (see also Gunter and Theroux, 1977, pps.345-350), these amount to examples of using mass-media technology in relatively small-scale nonformal education projects. This does not limit the value of his work, however: His elaboration of the participatory message development process--its benefits to participants, the product and ultimately the target learners--is equally applicable to mass media education proper.

Mass-media educators have long been caught in a bind between open broadcasting's low cost-per-learner but lack of behavior-change results on the one hand and the superior results but higher cost of broadcasting supported by supplementary materials and/or organized listener groups on the other. Gunter and Theroux call it the "Radio Educators' Paradox" (1977, p.338). Defining target audiences provides one means of improving the effectiveness of open broadcasting without greatly adding to its cost.

The first step in developing a targeted broadcast campaign is to identify and segment the target audience--in Guayaquil, for instance, the target audience segments were various groups of government officials, health workers, private veterinarians and doctors, community leaders and, finally, the pet owners stratified by geographic, education-

al and economic standing. Next, messages are designed to meet the specific needs of each target audience. Broadcasting specific messages tailored to the needs of individual audience segments increases the potential for appropriate messages reaching the right people.

In Guayaquil, doctors and veterinarians received information on the various ways they could aid the city vaccination effort while pet-owners were targeted for motivational and directional messages designed to encourage them to have their animals vaccinated.

Finally, a media plan is made, selecting a variety of media channels to match the accessibility of each target audience to a channel and the suitability of the channel as a carrier of a specific message. This technique--selecting media channels to reach specific interest groups--is often known as narrowcasting (Toffler, 1980).

Narrowcasting, or the planned use of mass media channels, increases the likelihood of messages reaching each segment of the target audience over channels appropriate to message and audience alike.

Again using the Guayaquil example, doctors and veterinarians were reached by in-depth orientations at medical society meetings while the mass of pet-owners were reached by brief messages repeated with great frequency through radio, TV and newspaper channels.

Narrowcasting and targeted broadcasting result in the production and dissemination of many messages over a multiplicity of channels. While costs are increased, the extra expense buys the demise of the universalized message of pure open broadcasting (sometimes known as "Spray 'n Pray" in religious radio circles) and increases the possibility of each potential collaborator in a public health campaign hearing relevant motivational and informational messages.

The Broadcast Forum

Interaction can improve the quantity and quality of learning. While live interaction between mass media audience and message originators, "simultaneous feedback" (Manoff, 1985, p.14) is virtually impossible, interaction among audience members has been successfully induced through means of the the radio forum (Rogers et al., 1977). Linking radio channels with interpersonal channels apparently originated in England in 1928, and in the USA in 1929, but was first used on a national scale in Canada in 1941. Since then it has been used for development education in other parts of Europe, and in Africa and India.

Despite Manoff's understandable objection to the mass media being relegated to roles "merely as NFE techniques" (p.18), Schramm (1977) placed the radio forum within the purview of nonformal education. Everett Rogers and associates sum up the radio forum as:

> ...a small listening and discussion group that meets regularly in order to receive a special radio program, which the members then discuss. On the basis of the program and discussion, they decide what types of relevant action to take.
>
> (Rogers et al. 1977, p.361)

As an example of the use of the radio forum, health education was the prime goal of the 1974 "Man is Health" radio study campaign in Tanzania. Linked to an earlier radio literacy forum campaign, its objectives were the provision of diagnostic and preventive information on specific diseases, consciousness raising, encouraging individual and group action towards better health and reinforcing literacy with printed health education materials. Latrine and well construction, malaria control and improving water quality, were some of the concrete actions taken by radio learning groups. (Hall and Dodds, 1977.)

Some of the principles underlying the radio forum are: Linking a mass media channel with the interpersonal communication channels within small groups of targeted audience members; feeding appropriate messages to these groups; and fostering a participatory learning process within groups--aimed at encouraging individual and group social action.

The potential for the broadcast forum approach goes beyond radio. It could conceivably be "broadcast" by newspaper, television, leaflet or, as we shall see, by questionnaire.

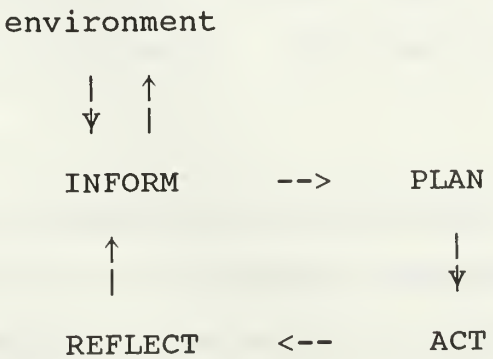
Participatory Learning

Mass mediated learning can be increased through the application of small group learning process in the broadcast forum. Kolb's Experiential Learning Cycle (1981) has four component phases: concrete experience, reflections on the experience, abstracting generalizations from the experience and testing the resulting theories in new situations. It could be viewed as an elaboration on Freire's (1970, p. 52) "praxis"--a cycle of reflection and action. Kolb's model can be collapsed into three phases: The first and last phases would become indistinguishable on a repetition of the cycle.

The experiential cycle can be applied to groups as well as individuals. I have previously proposed a model for experiential learning in groups. (See Figure 3.)

FIGURE 3.

GROUP EXPERIENTIAL LEARNING CYCLE



(Frith, 1983b, p.34)

This cycle provides a framework for the process of:

- Gathering from the group's environment what is currently known about a social problem situation (INFORM),
- Using this knowledge to formulate a PLAN on which
- to ACT, thereby generating information,
- REFLECTion on which, creates
- a higher level of knowledge (INFORM), to be built on by the group and disseminated to the environment beyond the group
- ad infinitum.

The two sides of group process--task and maintenance--have to be considered. Task process means simply "what" the group's job is. Maintenance means the "how" part of the group's process which makes attainment of task goals possible and can include establishing decision-making and conflict resolution processes and creating an open environment conducive to effective communication. These and other group techniques have been well developed in the fields (among others) of group dynamics (Miles, 1970), community education (US Department of Education, 1980) and citizens' involvement (Dale, 1979).

Participation in the Creation of Knowledge

The participatory research contribution to the Qforum process is largely in the value orientations it brings to the practice of participation in the creation of social

knowledge. These can be summed up in the form of dimensions of "interests" and "distance".

A principle derived from participatory research is that the interests served by the creation of knowledge and social change must be the interests of the creating group. This implies that the group's learning and process goals must be towards their own benefit. Without goal congruence between outside educators and groups, ownership problems will arise. "Why should this concern us?" "What's in it for us?" "Why should we waste our time on it?"

Perhaps the only alternatives to ensuring that groups' self interests are being met in keeping them together and on task, are coercion or manipulation--neither of which fits the value systems of NFE, participatory research or social marketing based on Sirgy's means analysis.

Competing interests could be as diverse as those of central bureaucratic control, the professional interests of educators, and the possibly anti-social interests of positivist scientists acting as "content specialists". Unless the goals are perceived as serving internal needs in a self-determining manner, "interest" will wane and activity cease.

The other dimension of participatory research is distance--in the senses of engaged vs. remote, near vs. far, internal vs. external, local vs. national, indigenous vs. universal, accessible vs. unintelligible and so on.

FIGURE 4

A SOCIAL LEARNING SCALE

	1	2	3	4	5
OBJECTIVES	Centralizing Social Information, Maintain Status Quo, Domesication, Assistencial				Creating Indigenous Knowledge, Self-determination Social Change, Emancipation, Empowerment
INTERESTS SERVED	Central Controlling External				Local Self-determining Internal
RESEARCHER	Professional, Paid Remote, Expert, Source of Knowledge & Method				Lay, Voluntary Community Member Facilitator
METHOD	Abstractive, Quantitative, Complex, Needs Expert Interpretation				Praxis, Creative, Reflexive, Qualitative, Dialogical, Open to Laypersons
DATA	Numerical Abstract				Verbal Concrete Experiential
VALIDATION	Comparison to Fixed Reality Quality of Method				Utility Effectiveness of Praxis Quality of Change
PRODUCTS	Reports, Documents Policy Planning Inputs				Process Praxis Social Change
CONSUMERS	Government Management External Planners				Producers are Consumers
DELIVERY	Banking, Selective, Distributive Top-down, Edictal				Dialogical Horizontal From Inside Out

The scale in Figure 4 provides a convenient framework for the tests of, among others, adjacency and congruity to some of the variable dimensions in participatory knowledge creation. It is derived from Reed's Lifelong Learning Scale of nonformal education variables (Frith and Reed, 1982; Frith, 1983a; and Giladi and Reed, 1985). Principles from participatory research have been added. The scale can be used as a diagnostic, planning or evaluation instrument. If indigenous social knowledge and emancipatory social change are the goals, project variables should tend toward the right of the Likert scales.

Inverting Survey Instrument Goals

The quintessential tool of the social sciences is the survey. In the present context, social surveyors would see their potential contribution in terms of measuring changes of attitude and behavior over time. They would conceptualize and design a longitudinal study to measure indicators of these variables "before" and "after" the change event. If the same people's attitudes and behaviors are being measured, the method of choice could be the "panel study". Oppenheim (1966) indicts "volunteer bias" as a major flaw in the methodology.

> ...members of a panel begin to take a special interest in the problems at issue; they become more knowledgeable and more critical and, to that extent, less representative [of those outside the panel and without the problem]; or

> members of a panel may change their behavior as a result of greater awareness produced by repeated questioning.
>
> (Oppenheim, 1966, p.20. My emphasis and note.)

These flaws of objectivity and bias happen to coincide with the critical theorists' standard critiques of survey approaches to social science. Their claim is these traits are unavoidable and invalidate the survey technique and any data generated. More interesting for our purposes, however, Oppenheim's indictment of the panel study presents a great opportunity for group education. He has inadvertently given us a clear example of a repeated cycle of experiential learning--induced by questioning! Simply by adopting Oppenheim's questionnaire flaws as goals, a powerful learning process can be built into a questionnaire. The inverted (introverted?) goals for our questionnaire can then be to:

1. Introduce information to the group, that
2. matches and intensifies group interests,
3. increases group identification, and
4. increases critical awareness, while
5. inducing behavior change and increasing knowledge

If these goals are kept firmly in mind, and a questionnaire is purposely designed to be "reactive" and employ to advantage the "interaction effect" (both are indicted as further factors jeopardizing the external validity of surveys by Campbell and Stanley, 1963, p.18) it can become the

focus of a group process maximizing the internal implications and application of the "facts" introduced from outside. The resulting introverted group process will be in sharp contrast to the extraversionary process intended of the standard social survey instrument: Information mining will not be possible. The resulting action/knowledge will tend primarily to serve group interests, "researchers" and researched will be the same, producers of the knowledge the consumers, and any data of prime, if not sole, utility and meaning to the group. Most data will not require statistical analysis and will be ungeneralizable beyond the immediate group. Only in those instances when there is a high degree of congruence between the interests of the originators of the questionnaire and target group self-interests will there be any degree of predictability of outcome--or any activity at all, for that matter.

Summary

I have outlined some of the salient principles and values of the various bodies of theory and practical experience contributing to the development of the Qforum as a particular strategy for incremental mass social change. Most importantly, I have tried to show that, while no detailed and consistent epistemology has been explicated, there is a sense of philosophical coherency between a social marketing based in Sirgy's QOL means analysis, a nonformal

education of explicit humanist values, and a participatory research justified within pragmatism. It follows that it is reasonable to expect that the derived parts of these three different fields can, in practical application, form a consistent whole. And, as different application breeds new meaning, I submit that the Qforum process should be judged on its own merits as an unique construct, and not solely on the basis of its components.

C H A P T E R V

CASE STUDY: THE QUESTIONNAIRE FORUM

Study Method

This chapter documents the design and implementation of a trial Qforum under field conditions. It is intended to present sufficient data for an overall evaluation, to point out weaknesses, and to suggest improvements. A case study approach was chosen. This method, as Stake (1978, p.7) has pointed out, is most suitable when more "expansionist than reductionist" objectives are "adding to existing experience and humanistic understanding".

First, to bring the setting into focus, the objectives of the anti-rabies campaign are briefly stated, then the overall educational objectives that were to support them are outlined. I then will discuss the opportunities (or lack thereof) for providing the educational support--particularly those which led to the conceptualization and eventual fielding of the Qforum. I will detail the development of this learning "instrument" and describe how it was implemented. Chapter VI contains an evaluation of this trial implementation.

Veterinary Objectives

The physical task facing the Guayaquil pilot rabies control program in 1985 was considerable: Data on the size and age structure of the dog population (Beran and Frith, 1985a and 1985b) showed that 178,000 dogs (80 per cent of the total dog population or 88 per cent of dogs three months or older) would have to be vaccinated, merely to begin the arrest of rabies. Natural turnover (dogs's life expectancy being only 2.2 years) would lower the residual of coverage from an initial 80 percent coverage to less than 55 per cent a year later. To maintain an adequate level of immunity over a sufficient length of time, large-scale follow-up vaccination campaigns would be necessary at regular intervals for several years. Experience gained by campaign staff in previous Guayaquil mass vaccinations showed that, in order to achieve and maintain 80 percent coverage, a sustained effort to vaccinate 100 per cent of the approximately 200,000 target-age dogs would be needed on an annual basis. This apparent overkill would be necessary partly in recognition of the difficulty of meeting vaccination goals in the crowded and confusing barrios, partly to offset inadequacies in record-keeping and the marking of vaccinated dogs, and finally to gain the benefit of a portion of the dog population having elevated immunities from the "booster" effect of follow-up vaccinations on the same animal.

Educational Support Objectives

Demographic data from the ecology study showed there were approximately 369,000 households in Guayaquil. Of these households, some 41 percent (about 151,000) owned at least one dog over three months old and about 38,000 owned more than one dog in the target age group. Assuming that a single-dog-owning family needed only one person to take their dog in for vaccination and that a family owning two or more dogs would need an average of two persons to handle its dogs (leashes being almost unheard of), over 200,000 people would be directly involved in seeing to the vaccination of their dogs.

The educational and informational support task for the mass vaccinations would then be annually to mobilize about 200,000 people in a city covering inhabited areas totaling 122 square kilometers scattered over a larger area of about 27km. by 20km.

While this mobilization had been conceived of as a military-style assault on rabies, previous experience had shown that a simple edictal approach to vaccination enforcement was ineffective in Guayaquil. Motivational messages would have to accompany the information messages if this enormous and diffuse population of dog owners was to be mobilized into attending clinics set up at specific times in pre-arranged locations.

Opportunities for an Education Campaign.

To achieve an annual mass mobilization, city wide, and over a period of a few days (as was planned), it was felt that educational support activities would have to rely heavily on a mass-media campaign. Two problems stood in the way, however. One was the lack of financial resources--at the time the campaign was being planned there was, as mentioned above, little prospect of receiving the bulk of campaign funds (which in any case did not include allowances for educational personnel and supplies, let alone a budget for mass-media advertising) in time for the oft-rescheduled mass-vaccination--and the other was a problem of educational ideology.

The program educators were committed to incorporating multiplication and interaction (see Chapter II) in the educational support campaign and aware of the limited viability of traditional mass media for the transmission of process and behavior change goals. The intrinsically one-way, top-down and "psychologically isolating" nature of the mass media channels available seemed to mitigate against these two process goals. We wanted to bring people together to learn both that they could (and why they should) take an active role in ridding their city of rabies. And we wanted them to learn what specific actions they would need to take to help support the campaign. But we neither had the

resources to produce a penetrating advertising campaign that would get everyone talking about rabies, nor could we hope to provide support for a traditional broadcast forum campaign--though we were confident that adequate media time would be donated.

The mass-media's main potential seemed to be more for transmitting informational goals (when, where, and why people could or should get their animals vaccinated) and less for the motivational and behavioral goals of the mobilization campaign (actually moving people to have their animals vaccinated). To achieve these behavioral goals, we felt we needed either to create or to find a network of existing small groups which could be reached with appropriate messages in an interactive learning process.

The family seemed to be the most logical target small learning group. After all, we had found almost no unowned dogs in our ecology study. This meant that virtually all dogs must be owned by families forming potential natural learning groups. Reaching families as existing groups would obviate the necessity and expense of creating and sustaining special-purpose learning groups. The question was, how could we reach the dog owning families with the process and content of a motivating, interactive educational event?

Our earlier survey showed us that 76 per cent of the households in Guayaquil had at least one child, and 50 per

cent of these families (about 97,000 households) had at least one school-age child (6 to 15 years old) and one or more dogs. These families accounted for 36 per cent (±80,000) of all the dogs and 39 per cent (±52,000) of the cats in the city and suburbs.

School-age children in Guayaquil showed potential as a communication channel to the owners of over a third of the dogs and a larger proportion of the cats. More than that, these animal owners were either the school childrens' family units themselves or individual members of the school-age children's families, meaning that school children-as-mass-medium were close to the target owners. Most of these children are concentrated into school communities for part of each week day for most of the year (universal access to education is claimed). In this way, classrooms could function as sites for linkage nodes in an extensive communication network of families.

As a channel for educational messages into the network of their homes, schoolchildren own an unique set of characteristics:

- They are easy to reach (at school)
- Most can read. (Against the 21% admitted primary school drop-outs in the survey)
- All belong to natural learning groups (families)

> - Roughly a third of all the dogs and a larger proportion of all the cats in Guayaquil are attached to schoolchildren households
>
> - School-age children are at highest risk of dog bite injury. Six to 15-year olds experience 47 bites per 1,000 children per year, compared with 9 bites per thousand for all other age groups
>
> (Beran and Frith, 1986, p.93)

It was decided that this potential entrée into a sizeable segment of the dog owning public would be worth developing. The obvious was to send a handbill home with the children. While this passive option offered an improvement in targeting as compared with open broadcasting, it lacked the potential for interactive learning.

A survey form, "loaded" with learning objectives suggested itself. It was inexpensive, easy to distribute and offered a medium for multiplication and interaction. Primed by classroom lecture, the children could then become both multipliers and media of distribution for an instrument of interactive learning process and content in their families. By requiring the return of the forms (even though there would be no intent to collect data), a measure of control would be possible.

Meanwhile, all other low- or no-cost approaches to mass-education were explored and pursued. To start with, 10,000 anti-rabies posters were donated by Plan Internacional. A TV station and two radio stations agreed to produce public service announcements for free distribution among all

other stations. A speakers bureau was activated and talks were given to dozens of influential groups of teachers, businessmen, Government officers, veterinarians, doctors, nurses and other health professionals. Lecture notes were prepared; rotafolios, slide sets and video tapes were obtained from various sources in Latin America; and a set of press releases and radio public service announcements was produced.

The Q-forum Intervention

Plan

First, a family learning process was visualized. The principles described in Chapter IV emerged reflexively while being employed as a guide to designing the participatory learning process and the questionnaire as the medium of this process. Then the questionnaire form was roughed out, pretested with six families and amended accordingly. Figure 5 shows the finished document translated from the Spanish.

The goal and objectives for the Questionnaire Forum (Q-forum) were:

Overall goal:

Gain the commitment of families to appropriate action in support of the rabies control program.

Process objectives were:

- Bring family members into a small learning group (Introduction and Q.1)
- Precipitate informative discussion (Q.6)
- Discover factual family information (Q.8-12)

- Gain commitment to appropriate action (Q.13)
- Extend the process to neighbors (Q.11 and Evaluation)

Affective learning objectives:

- Instill a feeling of the immediacy of the threat of rabies (Q.2,3)
- Elevate family interest in rabies as a soluble problem (Q.6,7,10,13)

Factual objectives:

- Rabies is fatal (Q.2)
- Rabies is to be feared (Q.3)
- Rabies is transmitted by family pets (Q.4)
- Rabies is transmitted by bite, scratch and lick (Q.5)
- Rabies exposure should be treated according to a prescribed protocol (Q.6)
- Rabies fatalities can be prevented by vaccination (Q.7,10)
- Pets should be vaccinated at over three months of age (Q.10)
- Relationship between feeding animals and the "stray" population (Q.11+12)

Family research objectives:

- Numbers of adults and children in the family (Q.8)
- Numbers of cats and dogs in household (Q.9)
- Proportion of target-age family pets vaccinated against rabies (Q.10)
- Prevalence of animal feeding by family and neighbors (Q.11)
- Number of street dogs on the block (Q.12)

Beyond meeting these objectives, it was decided that, for initial pilot-testing at least, the questionnaire form should generate some data for evaluation purposes. This represented something of a paradox as every effort had been made purposely to ignore all data-collecting functions and replace them with highly reactive questions to precipitate participatory learning. We anticipated that answers would reflect the position of the family groups in their own on-

going learning processes. As such, the bulk of the data entered on the forms would be virtually useless for external statistical comparison. However, we did need to learn facts that would help us gauge the extent of the penetration of the process into the family. Accordingly, the evaluation questions appended to the bottom of the form were aimed at collecting simple, direct facts about the number of people involved and the time taken to fill out the forms. (In my absence from Guayaquil, the data on all 934 returned forms were subjected to laborious and rigorous manual analysis by the program statistician. Ironically, extensive analyses were made of the "knowledge" questions, but the evaluation data were not tabulated.)

As mentioned above, several guiding principles and frameworks were borne (and born) in mind during the design process. The best way to discuss both the forum questionnaire and the thinking that went into it is to present the final document, translated from the Spanish (Figure 5, overleaf) and to follow it with an examination of each section and question in turn.

FIGURE 5
The Qforum Questionnaire

THE ANTI-RABIES STRUGGLE IN GUAYAQUIL:

DEAR STUDENT:

* This year we are going to mount a massive anti-rabies campaign for dogs and cats in Guayaquil.
* We hope all schoolchildren will work with their families and help us in filling out the following questionnaire.
* Only by understanding the rabies problem will we be able to reach our goals: To free the city of Guayaquil and all its people from rabies.
* Through this task you are helping free your family and neighbors from this disease.

THANK YOU

1. HOW MANY OF YOUR FAMILY ARE HELPING YOU FILL OUT THIS QUESTIONNAIRE?( )

2. WHEN RABIES SYMPTOMS ARE PRESENT, THE DISEASE IS:
   Minor( ) Serious( ) Fatal( ) Don't know( )

3. ARE ANY MEMBERS OF YOUR FAMILY AFRAID OF RABIES?
   All of them( ) Some( ) None of them( )

4. WHAT ANIMALS TRANSMIT RABIES: Dogs( ) Cats( ) Dogs and cats( )
   Others( ) Don't know( )

5. HOW IS RABIES TRANSMITTED TO PEOPLE?
   Biting( ) Licking( ) Scratching( ) All of these( ) Don't know( )

6. IN WHAT ORDER SHOULD THE FOLLOWING ACTIONS BE TAKEN WHEN SOMEONE IS BITTEN OR SCRATCHED BY DOGS OR CATS? (Indicate the order with numbers on this list)
   ( ) Notify the Health Authorities of the accident
   ( ) Take the victim to the Health Center or a doctor
   ( ) Catch the dog or cat for observation
   ( ) Kill the biting animal
   ( ) Wash the wound with abundant soap and water

7. WHAT'S THE BEST WAY TO PREVENT RABIES DEVELOPING IN SOMEONE BITTEN BY A RABID DOG OR CAT? See that the wound doesn't become infected( ) Bind the wound with fur from the same animal( ) Vaccinate the wounded person ( )

8. HOW MANY PEOPLE LIVE IN YOUR HOME? Adults ( ) Under 15 years old ( )

9. HOW MANY DOGS AND CATS ARE THERE IN YOUR HOUSEHOLD? Dogs ( ) Cats ( )

10. HOW MANY OF THESE DOGS AND CATS OLDER THAN THREE MONTHS ARE VACCINATED?
    Dogs ( ) Cats ( )

11. HOW MANY DOGS AND CATS ARE GIVEN FOOD, By your family?( ) Neighbors?( )

12. HOW MANY STREET DOGS HAVE YOU COUNTED ON YOUR BLOCK? ( )

13. HOW WILL YOU AND YOUR FAMILY HELP IN THE VACCINATION CAMPAIGN?
    (Please use the other side of this form)

- -

PLEASE DON'T READ THE FOLLOWING UNTIL YOU HAVE COMPLETED THE ABOVE!

These questions are to help us perfect this questionnaire:

* How many people did help you answer the questions? ( )
* How much time in minutes did this task take? ( )
* Was information from the neighbors you interviewed useful? (Yes) (No)
* Some families filled out more than one form. If this was so in your case, this is form number (1) (2) (3) (4) (5) (More)?

School: _____ Grade: _____

Many thanks for your help. Please give this form to your teacher or send it to:
Julián Coronel #506 y Ximena:
PROGRAMA PILOTO DE CONTROL DE LA RABIA EN GUAYAQUIL

THE ANTI-RABIES STRUGGLE IN GUAYAQUIL:

DEAR STUDENT:

* This year we are going to mount a massive anti-rabies campaign for dogs and cats in Guayaquil.
* We hope all schoolchildren will work with their families and help us in filling out the following questionnaire.
* Only by understanding the rabies problem will we be able to reach our goal: To free the city of Guayaquil and all its people from rabies.
* Through this task you are helping free your family and neighbors from [the threat of] this disease.

THANK YOU

Information and Process. This introductory section is self explanatory, its main purposes being to identify the rabies topic, the goal of rabies control, and to encourage family group formation and collaboration.

1. HOW MANY OF YOUR FAMILY ARE HELPING YOU FILL OUT THIS QUESTIONNAIRE? ( )

Process. This question is to reinforce the idea that the form should be filled out by the family as a group. This was to encourage a dialogue process towards interactive learning.

2. WHEN RABIES SYMPTOMS ARE PRESENT, THE DISEASE IS:
Minor ( ) Serious ( ) Fatal (X) Don't know ( )

Information and affect. This question was designed both to introduce fact and to bring the mortal danger of rabies to family consciousness. Like all the factual questions, it was intended either to lead to the correct answer or to be answerable by the child, having been primed at school. (Correct answers have been indicated wherever appropriate).

3. ARE ANY MEMBERS OF YOUR FAMILY AFRAID OF RABIES?
All of them ( ) Some ( ) None of them ( )

Affect and information. This was designed to elevate feelings of the immediacy of rabies, and beyond this, to encourage an affective discussion of feelings and emotions in the family group. A secondary goal of this question was to reinforce the idea that rabies should be feared. In common with all the other questions in the forum questionnaire, it was not designed to yield valid data or data useful beyond the family circle. It was hoped that the widely-held fear of rabies would form the substance of goal congruity between the family groups and the pilot control program: to decrease the distance between families, the program and the disease itself.

4. WHAT ANIMALS TRANSMIT RABIES [in Guayaquil]: Dogs ( )
Cats ( ) Dogs and cats (X) Others ( ) Don't know ( )

Information. This question was intended to introduce an important fact about rabies. A wrong option of "rat", which had been included in the baseline survey, was purposely left out. The goal of the forum questionnaire was to educate, not to expose the rate of "wrongness" nor inadvertently to perpetuate error.

5. HOW IS RABIES TRANSMITTED TO PEOPLE?
Biting() Licking() Scratching() All of these(X) D.K.()

Information. It was felt that this kind of factual question, like questions 4, 5 and 7 would provide means of bringing facts about rabies to the families' attention and

encouraging learning through dialogue. In fact, there is no "wrong" answer to this question.

6. IN WHAT ORDER SHOULD THE FOLLOWING ACTIONS BE TAKEN WHEN SOMEONE IS BITTEN OR SCRATCHED BY DOGS OR CATS? (Indicate the order with numbers on this list)

(4) Notify the Health Authorities of the accident
(3) Take the victim to the Health Center or a doctor
(2) Catch the dog or cat for observation
(5) Kill the biting animal
(1) Wash the wound with abundant soap and water

Process and information. This was a case study question with the case only implied. In order to deal with this question, a person or group would have to imagine a biting incident and its aftermath. In those cases where family members had direct knowledge of an incident, it could become the case under discussion. As such, this is a complex type of discussion generator. The family learning group would have to consider the relative merits of five different actions. A group of experts, too, might have trouble prioritizing these actions (although they would probably agree that killing the animal would have to be a last resort). The "answer" I have given is only one way these items might be prioritized.

7. WHAT'S THE BEST WAY TO PREVENT RABIES DEVELOPING IN SOMEONE BITTEN BY A RABID DOG OR CAT? See that the wound doesn't become infected( ) Bind the wound with fur from the same animal( ) Vaccinate the wounded person (X)

Information and affect. Two of these choices are "wrong". One is ludicrous today (the fur), though it is

based on a folk belief; the other was a red herring (infection). It was hoped that these two "plants" would lead to the correct choice--vaccination. This question is the only one that allows for a wrong choice being made. The reason it was included was perhaps traditional: Some people feel that survey respondents--especially the more sophisticated--expect to find a few wrong selections in a multiple-choice questionnaire. However, it was felt that a significant number of wrong answers to this question would constitute a defect in the Qforum process: It would be perpetuating error rather than helping to educate. (As it turned out no one picked the fur.)

8. HOW MANY PEOPLE LIVE IN YOUR HOME? Adults( ) Under 15()

9. HOW MANY DOGS AND CATS ARE THERE IN YOUR HOUSEHOLD?
   Dogs ( ) Cats ( )

10. HOW MANY OF THESE DOGS AND CATS OLDER THAN THREE MONTHS ARE VACCINATED? Dogs ( ) Cats ( )

11. HOW MANY DOGS AND CATS ARE GIVEN FOOD,
    By your family? ( ) Neighbors? ( )

Research. The goals for this group of questions were largely towards group learning process ends, although the answers would generate facts that may be useful to family decision-making about rabies.

The preceding questions all centered on "theory" or generalized facts fed into the family group from without. Now it was the time in the process for the family to take action by looking within the group for concrete local know-

ledge. In a sense this was to be a praxis combining outside theory and fact with internal fact-finding action and the indigenous facts themselves. The family might gauge how much of a potential rabies problem they "owned" within their scope of control.

12. HOW MANY STREET DOGS HAVE YOU COUNTED ON YOUR BLOCK? ( )

Process and research. This question and the last choice in question 11 were included with some degree of reluctance. Their intent was to indirectly "publicize" the family group process among the immediate neighbors by extending the family participatory research to them. The danger was (although there was no indication of it in the data recorded on the forms) that this outside activity might break up the family group. It would be important for them to be together as a communicating unit to answer the last question:

13. HOW WILL YOU AND YOUR FAMILY HELP IN THE VACCINATION CAMPAIGN? (Please use the other side of this form)

Process and affect. This open-ended question is designed to complete the generalization of facts begun earlier, particularly in questions 6 and 10, to secure application and to gain a commitment to family action against rabies. In a way, this is the most important question. But while it directly addresses the ultimate goal of the Qforum process--a change in family behaviors towards rabies control action--it could not function adequately sans the infusion

of rabies control theory and facts from without and from within into a family environment of collaborative learning.

PLEASE DON'T READ THE FOLLOWING UNTIL YOU HAVE COMPLETED THE ABOVE! These questions are to help perfect the questionnaire:
* How many people did help you answer the questions? ( )
* How much time in minutes did this task take? ( )
* Was information from the neighbors you interviewed useful? (Yes) (No)
* Some families filled out more than one form. If this was so in your case, this is form number 1/2/3/4/5/(More)?
School: Grade:

Many thanks for your help. Please give this form to your teacher or send it to: (The rabies control headquarters.)

Evaluation. This evaluation section will be discussed in more detail later, but it should be noted that the emphasized notice not to read it before filling out the main questionnaire was not to be taken too seriously. Auto-evaluation can be a valuable introspective addition to the learning process, and certainly in this case, knowing what would be asked at the end could only help the process. The reason this warning was included was partly to serve the interests (external) of certain holders of a traditional view of social surveying which holds that people "cheat" if they know the questions in advance. In retrospect, it was a valuable addition to the process--not only for the purposes of our evaluation, but also both as a preview of some expected behavioral goals and as an evaluation by the groups.

The draft form was amended at the suggestion of Dr Fausto Caicedo, pilot rabies control program director. The learning goals in the "information" questions had been pri-

oritized by him, and clarifying changes were made at his suggestion. He had suggested that a signature line for the head of household be added, but this was later dropped with his consent. He felt that requiring a parent's signature would ensure at least minimal participation by at least one adult and increase the level of effort expended by each family. However, regards for the privacy of Qforum participants (not to mention the awesome logistics and interference that would be incurred by obtaining consent forms from a thousand responding families) prevailed.

To summarize the design process, every effort was made to increase the Qforum's impact as a stimulant of a commitment to behavior change. The questionnaire itself was to be a carrier of process and content enlisting schoolchildren as the medium of transmission. Highly reactive questions were used to form family groups engaged in interactive learning of theory tied both to outside facts and to concrete local situations. As much as possible, the implicit process followed an experiential cycle of learning whose end was a commitment to change behavior in the mutual interests of controlling rabies in Guayaquil.

Trial Implementation

Preparation

Early in June, 1985, the questionnaire, a brief paper describing the underlying theory, goals, and process of the Qforum, and a proposal for a small-scale field trial were submitted to the regional subsecretariat of the Ministry of Public Health for approval. Results were encouraging. The subsecretary not only endorsed the trial but promised to provide transportation (very scarce in the Guayaquil health department) for distributing the forms.

The Faculty of Philosophy and Education of the University of Guayaquil reviewed the proposal and approved the trial. The faculty chairperson, who was also the provincial director of public instruction (state education department) offered the services of the twelve provincial school inspectors working in the city as teacher trainers and distributors of the forms. These inspectors assisted in the recruitment of sample schools and helped pave the way for their collaboration in the test.

My final contribution, before leaving the country on June 10th, was to purchase sufficient bulk paper, offset ink and matrices to print about 700 forms. The actual printing was done at no cost to the campaign by the provincial subsecretariat of health.

On July 2, campaign health educator Victor Tapia held a training session for 35 teachers from six schools chosen for the trial. The criteria used by Tapia to select schools were to: 1) include public and private institutions, and 2) represent each of Guayaquil's socio-economic classes in the sample. The half-day training was held at one of the sample schools, the Colegio Nuestra Madre de la Merced, and consisted of a thorough grounding in rabies epidemiology and control using the Modulo Sobre la Rabia (Tapia, 1984) slides and a rotafolio (pre-printed flip chart) and instructions for introducing and distributing the Qforum questionnaire.

Teachers distributed the forms at the end of a school week--after a brief talk covering the major learning goals. They were collected during the following week and picked up either by Tapia or a health department driver.

The following are brief descriptions of the sample schools with figures for forms distributed and returned.

Colegio Espiritu Santo. A large private Catholic grade and high school in an upper-middle-class neighborhood, predominantly attended by children from upper and upper middle class families. Six teachers participated in training. Since forms were in short supply, this school offered to reprint an extra 100 forms at their own expense.

Forms returned/distributed: 188/200 (94 percent)

Returned: 4th grade: 44, 5th grade: 67, 6th grade: 77

Colegio Nuestra Madre de la Merced. Not to be outdone by their rivals, this private school offered to print their own forms. Without consulting the program, they included a signature line for the head of household--otherwise the forms were identical. Six teachers attended training. Like its rival, this mixed school attracts a population of children from Guayaquil's wealthier classes.

Forms returned/distributed: 161/200 (81 per cent)

Returned: 4th grade: 69, 5th grade: 28, 6th grade: 64

Colegio Republica Federal Alemana. The building that houses this school starts each day as the Colegio Republica de Francia, and switches at noon. Nine teachers from this school attended the training session. Like many other government school buildings in this rapidly-growing city, it has to be shared in shifts. The children here are from the surrounding older, lower-to-middle-class neighborhood in the western suburbs.

Forms returned/distributed: 157/218 (72 per cent)

Returned: 4th grade: 39, 5th grade: 87, 6th grade: 41

Colegio Presidente José Mena Velasco Ibarra. This medium-sized government school is situated in one of a series of middle-class suburbs that were developed within the past ten years in an area about five to six kilometers north of the central city. The school student population reflects the class of the predominantly professional and

government officer families in the area. Six teachers attended training.

Forms returned/distributed: 184/210 (88 per cent)

Returned: 4th grade: 53, 5th grade: 72, 6th grade: 59

Colegio Republica de Colombia. This government school shares its building with a morning school and an evening school. Most of the boys here come from a lower-middle-class background. Three teachers attended the training session.

Forms returned/distributed: 145/146 (99 per cent)

Returned: 4th grade: 73, 5th grade: 32, 6th grade: 40

Colegio Olfa de Bucharam. Situated next to a partly filled-in estuary in a poor neighborhood four kilometers to the south west of the city center, this small government school is attended mostly by children from the surrounding lower class neighborhood. This school sent six teachers to the training session.

Forms returned/distributed: 90/105 (86 per cent)

Returned: 4th grade: 19, 5th grade: 26, 6th grade: 45

Summary

In this chapter, I have described the veterinary task facing the rabies control campaign in Guayaquil as being the regular, repeated vaccination of over 200,000 dogs, and that the supporting educational goal was to mobilize 200,000 or more people in active collaboration with the vaccinators.

Mass media methods were chosen by the campaign educators to carry the bulk of the educational messages. However, a dissatisfaction with the apparent inability of the mass media to effect behavior change led them to develop and test a novel means of achieving interactive learning in family groups at a cost low enough to be comparable with the cost of the mass media.

The Qforum, as the intervention is called for short, consisted of a take-home form distributed to schoolchildren after a short talk on rabies given by their teachers. The form contained instructions that it be filled out by the family as a group. The questions were loaded with informational messages and motivational objectives. The primary purpose of the forms, which had the appearance of a data-gathering social research instrument, was to instruct family groups rather than to extract information from them. Six schools collaborated in the trial, and forms were distributed to 4th, 5th and 6th graders.

The following chapter presents the results of the trial and an evaluation with a projection to a larger scale intervention.

C H A P T E R V I

QFORUM: EVALUATION

Procedure

Logistical constraints meant that a comparative study of the different levels of collaboration in the anti-rabies vaccination campaign between Qforum participants and non-participants was not feasible. The evaluation plan for the Qforum trial included (a) an examination of indicators based on data captured on the forms, and (b) a series of interviews with (i) teachers, (ii) families, and (iii) entire classes. The most practical indicators of goal achievement could be derived from an examination of the degree to which the goal-supporting objectives were met (quality) and an assessment of the numbers of participants and the time expended by them on the Qforum (quantity). No matter how desirable, external validation under controlled experimental conditions was quite beyond the reach of the program. The major evaluation questions would be:

Quantitative Questions:

1. How many people were reached by the Qforum process?

2. What proportion of the whole target audience (pet-owning families) do the participants (families of school-age children) represent?

3. What proportion of the potential audience (families of school-age children) can be reached through the Qforum process?

4. What costs were incurred in the trial, and what costs can be projected for a full-scale Qforum intervention?

Qualitative Questions:

1. To what extent were process and affective learning goals met?

2. What progress was evidenced by the participant families towards learning about rabies?

3. Was there evidence that respondents had made a commitment to collaborate in the rabies control campaign?

4. Which families cooperated. Was socioeconomic class a factor?

A full evaluation was not possible until my return to Guayaquil in June 1986. Almost a year had elapsed since the Qforum had been given trial. Dr. George Beran and I were to be in Guayaquil to carry out an independent evaluation for the World Health Organization of the city-wide mass canine rabies vaccination that had been carried out during the intervening months. I preceded Dr Beran both to gather basic data from the vaccination campaign records and to begin the evaluation of the Qforum trial.

In spite of the limited amount of field time available to me, and thanks largely to the program's health

educator Victor Tapia's interest and help, I was able to gather sufficient information from a variety of sources to indicate that the Qforum had been successful in achieving many of its objectives at a very low cost (in terms of material costs and person-hours expended per participant). Tapia had earlier arrived at the same conclusion. In an informal report of September 1985, he had stated:

> As to the questionnaire we prepared for implementation in the schools: The results were magnificent! Six schools participated; four public schools in lower and lower-middle class areas; and two in economically upper and upper middle class Urdesa--Espiritu Santo and Mercendaria [Nuestra Madre de la Merced].
>
> (Tapia, 1985)

He had planned to follow the pilot trial of the Qforum with a full-scale intervention, as he reported:

> It was not possible to do the grand survey in all colleges and schools because we did not have paper--<u>the eternal problem</u>. We are completely out: All we have right now are 700 rotafolios on rabies....left over from a job done in the Ministry of Agriculture and which they don't know how to use.
>
> (Tapia, 1985)

Undeterred, Tapia used a small supply of paper that came unexpectedly to hand soon after the Qforum trial to distribute 5,000 miniature Qforum questionnaires to families in cars and buses on their way out of Guayaquil on a national holiday. The questions on it were fewer in number and the correct answers even more obvious. The instructions were for the children to ask their parents the questions and

fill in the answers on the way to the beach. They were not asked to return the form. Coincidentally, one of the 12 families interviewed in the evaluation remembered filling out one of these forms.

Assuming (wrongly, as it turned out) that funds for paper would shortly become available, Tapia was planning to make another full-scale attempt, in late 1986, involving 10,000 schoolchildren, as a major part of the educational prelude to the 1987 follow-up mass vaccination campaign.

This evaluation is based in part on Tapia's report (Tapia, 1985); and on group interviews in all 12 fifth and sixth grade classes whose teachers and students had participated in the Qforum process the previous year (although, obviously students and teachers were no longer paired as in the previous year); a similar interview with two classes in a non-participating school; interviews with a dozen randomly-selected families (two from each participating school); and the data on the returned forms. For a variety of reasons, the data collected on the Qforum sheets should not be regarded as the equivalent of data collected under closely-controlled survey conditions. (See "Limitations" in Chapter III.) Although many of the questions were designed to be highly reactive, answers to other, purely quantitative, questions relating to participation will serve as a measure of the extent of involvement. Summaries of answers to other

questions will help to create a picture of the quality of the process that took place in the participating families.

Quantitative Evaluation

1. Costs in time. Tapia reported that the intervention took three weeks from initial contact with school heads to the collection of returned forms. He indicated that as much as a third of his time had been taken up with making contacts in preparation for the teachers' training and in the collection of the forms. Many delays were caused by the lack of transportation (in spite of the subsecretary's offer). He felt that the test had been somewhat compromised by his (and all other Guayaquil health educators') "peren-

TABLE 3

Qforum Trial: Set Up Time Expenditures,

Guayaquil, 1985

Coordinator (Tapia):		
Set-up time (making contacts, arranging printing, scheduling, etc):	20 hrs	
Teacher training:	10 hrs	
Travel:	10 hrs	
Cost to anti-rabies campaign:		40 hrs
Driver and Vehicle:		
Cost to subsecretariat:		10 hrs
35 Teachers:		
Training (@3.5 hrs + 30 min travel):	140 hrs	
Classroom (20 teachers @ 30 minutes)	10 hrs	
Cost to schools:		150 hrs
Total estimated person-hours expended:		200

nial" lack of paper which prevented printing a teachers' guide for classroom use he had developed. The costs incurred in the Qforum trial are summarized in Table 3. For clarity's sake, my own time (which was spread over about three or four weeks for development and a week of evaluation) is not included.

Material costs were relatively insignificant. For training, Tapia used materials at hand--some training module books, slides and a rotafolio. The cost of the paper and ink (printing for 900 forms was provided at no charge) plus an estimate for mimeographing the extra 200 copies came to well under US $20, or less than two cents a piece.

2. Contact Time (Penetration). 934 (87 per cent) of the 1,079 forms distributed by teachers were returned to the program. Data from these forms are, for reasons mentioned above, perhaps even less statistically reliable than formal surveys. But they do provide some indications--among them the approximate numbers of people involved in the Qforum process and the approximate time devoted to filling out the forms. There is reason to believe that the data on the forms yields a conservative picture: an unknown number of forms were utilized but not returned to the teachers.

Between 2,019 (as reported in question 1) and 1,702 (first evaluation question) family members helped the 934 responding schoolchildren in filling out the form. The mean

time taken to fill the form out was reported to be 8.3 minutes and the mean number of family members involved lay between 2.8 and 3.2. If the data are to be taken at face value, then between 2,953 and 2,636 family members expended a total of between 408 and 365 person/hours working in the Qforum process. In addition, 28 per cent of the responding schoolchildren reported (in the evaluation section on the forms) a positive gain from interviews with neighbors. Since the combined population of the families was reported (question 8) to be 5,857, and using the family age profiles from the demographic baseline data as a guide, approximately 2,000 additional family members over the age of four, and perhaps 500 or more neighbors are likely to have been at least aware of the activity.

3. Projection. Plans for a larger-scale implementation required a projection based on the pilot experience. The major procedural change planned was the elimination of the teacher training phase. This was deemed a necessary move in light of the prevailing lack of training personnel. Since the Qforum had already been developed, development would be limited to preparing a brief training module for use in the classroom by the teachers to convey the facts about rabies control to the students before they took the Qforum home. And, rather than attempting to gain permission from individual principals, the Qforum would be mandated by

education ministry order. One such projection, based on a distribution to 4th, 5th and 6th grades, is summarized in Tables 4 and 5.

TABLE 4

Qforum: Projected Penetration

Guayaquil, 1986

Target: 10,000 families

Schools: 50 (average 200 combined 4,5 and 6th grade students)

Utilization rate: 85 per cent
(form return rate in trial was 87 %)

Participants: 8,500 forms x 3 persons = 25,500

Anticipated contact time:
25,500 x 8 min. (vs. 8.3 min. in trial) = 3,400 person hours

The ratio of participant contact hours with the Qforum process to personnel hours expended in the proposed large-scale intervention was expected to be 20.6:1 (3,400:165 hours). In other words, for each hour of paid time invested, 20.6 hours of interactive participant learning, spread over a population of 25,500 in groups averaging three in size, was projected to occur. (This projected leverage in time is very much larger than the estimated 2:1 ratio actually achieved in the pilot. But, even at this small scale, had a teaching guide been substituted for teacher training [as originally planned] and time spent gaining principals' permission eliminated, the ratio of Tapia's time [now about 20 hours] plus five hours of driver's and ten hours of

teachers' time to participant learning time [408 to 365 participant/hours] would have been between 11.7 and 10.4:1.)

TABLE 5

Qforum: Projected Time and Materials Costs, Guayaquil, 1986

Coordinator:	40 hrs
Driver/Vehicle: (2 x 30 min visit per school):	50 hrs
Program Time Investment:	90 hrs
Classroom Time, 150 Teachers:	75 hrs
Total Time Investment:	165 hrs
(Excluding participant opportunity costs of 3,400 hours)	
Materials: 10,000 forms, 50 modules:	US $200

Eliminating the investment of teacher time as a cost external to the program would further increase the apparent time leverage in the planned intervention to 38:1 (3,400 to 90 person-hours). It would be as though the anti-rabies campaign would be able to hold 95 three-person, eight-minute group sessions for each hour of time invested by the administrator or driver.

Finally, my avoidance of money costs and the focus on a time-based cost analysis were quite deliberate. The pay scales for health professionals and workers in Ecuador is, for recent political reasons, highly distorted. As of 1986, Civil servants at all levels without access to supplementary income were barely able to subsist. The salary figures are

thus not comparable with other countries. If however, the experience were cast in terms of a modest US scale pay and expense scale the costs, expressed in dollars, to the program would be approximately US $1,150.00 (See Table 6).

TABLE 6

Qforum: Projected Costs in US Terms

Coordinator:	40 hrs @ US $10.00	400.00
Driver:	50 hrs @ US $3.50	175.00
Vehicle:	7 days @ US $25.00	250.00
Printing:	10,000 forms @ $0.03	300.00
	50 training modules @ $0.25	25.00
Total direct costs to program:		US $1,150.00

Were these to be the actual costs (having externalized the teacher expenses and overheads), each of the 8,500 Qforum groups (averaging three persons working together for eight minutes) could be expected to cost the program (in U.S. terms) 14 cents. The expense per participant per minute would then be just over half a cent (US 56 mils). Actual costs in Guayaquil would be much less.

Qualitative Evaluation

The potential to reach a targeted audience of 285 participants with eight minutes of interactive learning per person hour expended seemed to be impressive in terms of the investment in time. However, that same hour could be put towards the development of a series of radio and TV public

service announcements that could, by frequent broadcast and at no cost to the rabies campaign, reach hundreds of thousands of dog owners. Why then did the campaign managers plan to divert a considerable proportion of the time available away from a purely traditional mass-media campaign and invest it in a series of enlarged Qforum interventions?

The answer lay in the the behavioral expectations for the educational campaign. Mass-media educator Dr Katherine T. Frith (1987), confirmed that traditional mass-media methods would have been incapable of transmitting the five process and five family research objectives incorporated in the Qforum process. According to her, the utility of the mass media would have been limited to disseminating the eight factual learning objectives in a series of four public service announcements. It was the ten additional process and research objectives that were expected to move the audience, in advertising terms, from unawareness to action. For these, a more interactive, participatory approach than was offered by standard mass media methods would be needed.

1. Process and affect.

With the single exception of a poor and very elderly couple who were providing a home to a great grand-child, every family interviewed a year after the Qforum trial expressed enthusiasm for the experience. Two families were selected by lottery from each 5th and 6th grade classroom.

Each of the 12 families was asked the following questions, before being encouraged to expand further:

1. What has been the most important source of rabies information for your family?

Seven cited TV ads, two radio, one both, and one (none of whose immediate neighbors owned a TV or radio) cited word of mouth. No mention was made at this stage of the Qforum.

2. If it was your job to educate the people of Guayaquil about rabies, what means would you use?

The father in one of the five interviewed families from the lower socio-economic class (using a subjective but consistent scale developed in the ecological survey) chose radio ("doesn't every dog listen to the radio?"). Informants from the other four lower-class families said they would employ word of mouth through means of informal neighborhood talks (charlas). This is the method used by barrio captains for political and development organizational purposes. The four upper class families and one of the three middle class families chose TV. At this point both the remaining middle class families remembered and selected the Qforum as their choice means.

We were careful up to this point not to reveal our interest in the Qforum, and it was evident that the barrage of TV and radio public service announcements and the experience of the actual barrio-by-barrio mass vaccination that

had taken place during the intervening year swamped the initial impact of the Qforum.

3. Did your family fill out this form? (Exhibiting a copy of the Qforum questionnaire.)

With the single exception of the great-grandparent family (the child, a fourth-grader who had filled out the form with a neighboring family, was not present), all respondents said yes. Only three families seemed to lack interest--two lower (including the elderly family) and one middle class family.

Every one of the interviewed families was surprised to hear that the Qforum was intended to educate rather than collect information, but there were no negative reactions. On the contrary, comments like:

> It was a fantastic idea to get the children to bring our lesson home with them.

and

> When the children remind the parents, can we ignore our duty?

were typical.

4. How long did it take and how many worked on it?

It may have been that our sample size was too small (this having been conceived of more as a "reality check" than a survey) or that, face-to-face with a government officer and a foreigner, people tend to exaggerate; our interviewees claimed that an average of five people (close to the median family size in Guayaquil) spent more than 23 minutes

together on the form. This compares with the mean of 8.3 minutes and three persons reported on the forms.

Our overall impression was that the Qforum process--despite its grim topic--had been a happy process for the ten families we classified as successful. One admittedly totally illiterate mother said:

> I cried with joy when eldest daughter began to read the form to her brothers and sister. It was the first time anyone in our family has been able to read anything more than cartoon books.

Another, a civil servant, said:

> The meeting was good for us. We never have time to talk to each other, but we spent over an hour on the form.

A father in an upper class family, overhearing the children doing the form together, told them to stop and wait for their mother and aunt to get home:

> When everyone was there, I called in the maid and my driver and conducted our meeting. It was a good one, and at the end we knew what to do.

Another family got on the radio-telephone with the family farm so that the father could join in. Apart from the lack of success in the great-grandparent family, there was one other family in our small sample that failed. The child in this very poor family filled in the form herself when unable to arouse the interest of her mother or father. There were indications that children in the poorest families in Guayaquil are held in low regard,

but it was equally evident that the Qforum had helped raise children's prestige in at least a couple of cases.

Data compiled from responses on the returned forms suggest that the process objectives--bringing family members together to form a learning group, precipitating informative discussion, discovering family facts, gaining commitment to action, and extending the process to neighbors--were all met to a greater or lesser extent in the majority of cases.

With the exception of the returned forms that included the fathers' signatures, we cannot be certain of the extent the process extended beyond the children in the families. We know that five per cent of the informants stated on the forms that they had filled them out alone. But ten out of the twelve families directly checked claimed that at least one adult had been involved, however, and it seems reasonable to assume that the data on the vast majority of the forms matches reality. The bias due to informants attempting to please the authorities should not be overlooked. However, in the case of the notoriously independent-minded Guayaquileños, especially given the relative anonymity of the Qforum, this was probably not a significant factor. If Qforum data match reality, groups actually were formed (the maximum size was nine, the median being three), and, as evidenced by the filled-in answers, learning took place.

Every returned form showed that the respondents had attempted to research and fill in the relevant family statistics pertaining to the numbers of children, adults, dogs and cats. These data closely matched the statistics gathered in the earlier door-to-door demographic/ecological survey of households in geographically-randomized city blocks. Most of the pet-owning families reported the proportion of their vaccination-aged pets and the numbers of vagrant animals they fed as well as how many lived in the neighborhood. One of the middle-class mothers interviewed said,

> I thought it was an act of kindness to leave scraps out for the poor cats and dogs. My daughter says it's more like suicide!

As an indication of whether the process had been successfully extended to neighbors, 262 respondents (28 per cent) reported that they had received useful information from neighbors. Indications of commitment are addressed separately below.

Perhaps the only way to discover whether an affective mode of learning can be induced by the Qforum is to observe the process directly. This had not been possible, and the only emotion (if such it is) recollected by the small sample of interviewed families was "interest". I would argue that the purpose of employing affective learning is to engage emotion as a means of deepening personal <u>interest</u> in the content and process of the learning. It should be remember-

ed that substituting self or group (in this case family) interest for the usually external interests of standard social research is cited as an essential pre-requisite to successful participatory research.

2. Factual learning.

The data recorded by respondents showed that factual learning did take place during the Qforum process. Exactly how much, relative to what was known beforehand, is hard to determine, but one thing is reasonably certain: while Tapia's enthusiastic statement (based on a preliminary analysis of responses to the factual questions) that

> One of the most important learnings is that a large percentage [of responding families] know about rabies--they're well-informed.
>
> (Tapia, 1985)

may have been true, not all of the knowledge reflected in the returned Qforum forms existed in the families before the intervention. The responses in the collected forms reflect more the process of transmission of the learning objectives from schoolchild to family circle, than how much was actually learned.

It was abundantly clear that the Qforum schoolchildren were far more knowledgeable about rabies than their peers in non-participating schools: All twelve participating classrooms we visited a year after the intervention resounded with unison answers to the same factual questions as had appeared on the form. But the responses had to be coaxed

out of or prompted to two classes at a school that was the virtual twin of (and within 200 meters of) the participant school in the poorest neighborhood. At least our "multipliers" seemed knowledgeable enough, and the families we were able to visit had picked up the salient learning objectives (certainly aided, it must be remembered, by the mass media campaign).

TABLE 7

"Correct" Responses to Factual Qforum Questions

Guayaquil, Ecuador, 1985
(n = 934)

Q.2 When rabies symptoms are present, the disease is FATAL.	471	(50 per cent)
Q.4 DOGS AND CATS transmit rabies.	877	(94 per cent)
Q.5 Rabies is transmitted by BITING, LICKING AND SCRATCHING	722	(77 per cent)
Q.6 The first action to be taken after an animal injury is to WASH THE WOUND WITH ABUNDANT SOAP AND WATER.	769	(82 per cent)
Q.7 The best way to avoid rabies development from an exposure is to VACCINATE THE WOUNDED PERSON.	851	(91 per cent)

A tabulation of correct responses to the factual questions is set out above, in Table 7. Interestingly, the weakest knowledge point was the certainty of fatality once the symptoms of rabies are manifest. This could conceivably

have resulted from an oversight by the campaign educators in omitting such an obvious message from previous mass-education campaign, or the question was (as the father in one of the family interviews claimed) ambiguous, I prefer the, perhaps chauvinistic, explanation that a denial of hopelessness runs deep in the Ecuadorian character.

3. Commitment.

An indication that a commitment to "help in the vaccination campaign" was made by some respondents and families can be inferred from an analysis of the responses to the last question, an open-ended invitation to describe proposed actions. Sixty-five percent of the forms returned included at least one statement of resolve written on the reverse. A tabulation of the points of resolve mentioned by respondents are set forth in Table 8.

TABLE 8

Action Resolutions Made by Qforum Respondents, Guayaquil, 1985.

Frequency of mention	Points of Resolution
341	Help campaign get dogs vaccinated
290	Spread the [rabies control] information [on the form] to neighbors
60	Report vagrant or unvaccinated dogs
50	Report sick or possibly rabid dogs
34	Keep family dogs off the street
33	Ensure bite victims receive treatment
11	Avoid contact with street dogs
9	Keep pets healthy and well fed
8	Help keep the neighborhood clean
7	Appeal for vaccination in neighborhood
2	Get rid of family pets
1	Stop feeding vagrant animals

A large gulf exists between commitment and action, and with no means of comparing the quality of participation between Qforum and non-participant families, no definitive assessment can be made of the Qforum process as a means of spurring action. If however, the assumption that participatory or interactive learning is more likely to support behavior change is a valid one, then it is reasonable to assume that the learners in the Qforum process are more likely to have taken positive action than the passive recipients of open broadcast anti-rabies messages.

The value of the final open-ended question is shown by the larger group size, averaging between 25 and 16 per cent increase (to 3.7 or 3.4, based on responses to question one and the first evaluation question respectively), of the family groups that included commitment statements on the reverse side of the questionnaire form. It can be inferred that either larger groups tended to spur commitment or students committed to doing a good job with the Qforum were successful in assembling larger groups. Either or both effects could be true, and either case has value with regard to stimulating commitment.

4. Responding families.

Determined by its nature and design, the audience for the Qforum is families of school-age children. While we were reasonably confident of the quality and quantity of

learning that would be induced by its trial, we were less certain of how well it would penetrate the target audience for the rabies control campaign's educational program: dog owners.

Base data from the earlier, city-wide ecological and demographic survey showed that 50 per cent of the families of schoolchildren owned at least one dog. The fact that 55 per cent of Qforum families reported they owned one or more dogs is consistent with the ratio of dog-owning families found both in the more densely-populated lower-class suburbs and the wealthier areas of town. Fewer families in the less densely-populated and ecologically-hostile swampy squatter settlements are able to support pets. These areas were not represented in the Qforum trial. The ratio of people to dogs (7.7:1) is also consistent with baseline data from the areas in which the trial took place.

Perhaps the most vexing problem experienced in the baseline survey was surprisingly absent from the Qforum: the difficulty of gaining the cooperation of the upper-middle and upper classes. Sources of ecological and demographic data on a large proportion of the wealthier families had been, of necessity, guards or maids--the occupants being unwilling to be interviewed. But there was no evidence that class had been a differential factor in the ease of penetration by the Qforum into family learning circles.

Neither was there significant variation in the indicators of quality of process between expensive private schools and government schools in middle or lower class neighborhoods. Nor could variations in knowledge reflected on the Qforum sheets be ascribed to the class or grade of respondents.

Evaluation Summary.

In response to the purely quantitative questions we posed regarding the actual and projected performance of the Qforum, the results indicate that:

1. Using the form return rate as an indicator, at least 87 percent the families of the schoolchildren to whom the forms were distributed were involved to varying degrees. Between 2,019 and 1,702 family members were reported to have participated in filling out the forms.

2. The ecological survey data showed that families of school-age children accounted for 36 per cent of the dogs and 39 per cent of the cats in Guayaquil. Sixty-five per cent of the Qforum families reported owning dogs or cats. This, too, was in line with the ecological survey data.

3. Some 87 per cent of the target audience were reached by the Qforum. (As evidenced by the form return rate). At the penetration rate achieved in the trial, a mean of three members of each family--collectively owning approximately 30 per cent of the dogs and 34 per cent of Guayaquil's cats--could be reached by means of the Qforum.

4. A time-based costing of the Qforum trial shows that the total costs were 200 hours of coordinator, driver and teacher time for a return of between 408 and 365 person/learning hours. Projected to a larger scale of 10,000 families, and substituting a teaching guide for direct teacher training, the anticipated costs (excluding overheads and classroom time) the time-expended to learning-time-gained ratio would be approximately 1:38 person/hours. Put in US dollars at modest US pay and expense scales, costs are projected to be about 14 cents per eight-minute interactive learning session of three persons, or just over a half cent per learner/minute.

5. The quality of the process accomplished in the average family learning circle can, on the basis of the data recorded on the Qforum sheets by respondents, be judged to have been satisfactory. These findings were supported by visits to a random sample of 12 participant families. In all but five percent (48 cases) of the 934 families whose forms were returned, groups of two or more (the mean group size being three, and maximum nine) were reported to have formed. As we have seen, the mean time taken to fill out the form was a little over eight minutes.

6. Process goals were met in the majority of cases: family groups were formed; discussion of relevant rabies control facts ensued; data on family demographics and pet

ownership were compiled; there was evidence that the process reached neighbors in over a quarter of the cases; and 65 per cent of the returned forms included at least one written statement of commitment to help in the mass vaccination campaign. The extent to which an affective learning mode was precipitated by the Qforum is unknown. However, a majority of families subsequently interviewed claimed to have had a high level of interest in both process and content.

7. Unquestionably, factual information about rabies was learned in the family groups. Two classrooms of participant schoolchildren were found to be more knowledgeable on rabies control measures than their counterparts in two non-participant classrooms.

8. The fact that no significant differences were found between the rates of collaboration on the basis of the socioeconomic background of the participating schoolchildren provided evidence that the Qforum process did not evoke the same reluctance by upper and upper middle classes as had been observed in the baseline, door-to-door survey.

9. Families effectively reached through the Qforum were found to fairly represent the population of families of school-age children living in similar areas of Guayaquil.

In every respect, the Qforum exceeded the expectations of the rabies control program in reaching families with an interactive, commitment-gaining rabies educational process.

Outcomes

The most immediate reaction to the preliminary assessment of the Qforum by the Guayaquil rabies control program was, as discussed above, to plan a larger-scale implementation aimed at as many as 10,000 families. Frustrated by a lack of paper, this plan was first delayed for a year, and then shelved indefinitely. Meanwhile, however, a supply of small sheets of paper was obtained and used to make an abbreviated version of the Qforum. These were handed out to cars and buses on a public holiday, to be filled out by children and their parents as they headed towards the beach.

The increase in parental esteem and approval for some of the participating schoolchildren was considered to be an important side-effect of the Qforum process. This effect was remarked on by the parents in two lower-class families included in the interview sample.

Another source of unexpected but welcome outcomes were some of the messages written on the back of the forms. In addition to the commitments to action listed in Table 8, several offers of material assistance were made. Three cars and a family VW bus were loaned for transporting vaccinators, and an entire factory workforce of 23 people and three trucks was placed at the campaign's disposal for two days.

However, the most dramatic direct outcome of the Qforum intervention was a series of activities involving school-

children that were facilitated by Victor Tapia while the mass vaccination campaign waited for its funding to arrive. From Tapia's report:

> One of the most important events is what happened to me in regards to the fifth and sixth graders (who participated in the home 'survey'). I interviewed a group of their teachers who suggested that, as this is the International Year of Youth, the students could lend their support in developing programs of benefit to the community. My suggestion was that they could vaccinate dogs and cats. This was well-received [by students] and two colleges have already participated. Through their efforts we have vaccinated the following barrios: Carmen and Santa Ana Hills, Atarazana, FAE, Albatros, Urdesa, Miraflores and Paraiso. The students were already so well motivated that they collaborated to the fullest. ...I have prepared students from six more schools. They are ready to collaborate with us.
>
> (Tapia, 1985, my note.)

Eventually, over eight thousand dogs were to be vaccinated through direct action in their own neighborhoods by 5th and 6th grade vaccinators who had participated in the Qforum process--before the press of more routine campaign duties claimed the attention of the campaign educator.

C H A P T E R V I I

SUMMATION

Rabies Control as Community Learning

This dissertation has necessarily focused rather narrowly on a single aspect of the flow of educational activity that was only one of several facets of the mass anti-rabies vaccination campaign in Guayaquil.

This narrowness of outlook was not a result solely of the need to learn "more and more about less and less" to satisfy the dictates of terminal graduation. My prime purpose in Ecuador--and the purpose of the World Health Organization in sending Dr Beran and I to Guayaquil--was to help carry out a study of urban dog ecology. It was the happy coincidence of my personal interest in nonformal education with that of my counterpart, Victor Tapia Corradino, that led to my involvement with his mobilization campaign that was to contribute so much to the success of the rabies control program. My involvement was limited to assisting in developing overall educational and informational strategies and in developing the Qforum intervention.

The whole bundle of activities that constituted rabies control in Guayaquil was conceived of as a community learning/action campaign. There were two main reasons, perhaps, why this holistic view was adopted. The most important was

the willingness of Dr Fausto Caicedo Gomez, DVM, the campaign director, to abandon traditional control measures in the light both of an admission of the partial failure of past herculean traditional control efforts and the need for a fuller understanding of the dynamics of rabies in his city. The second reason that the whole rabies control campaign came to be seen as a learning activity on the community level was Dr Caicedo's choice of an experienced community health educator, Victor Tapia, as his partner.

The fruit of this true partnership between Dr Caicedo and Victor Tapia was a melding of veterinary and educational thinking. This happy relationship was, by design, echoed in the WHO advisory team--in the nonformal educator's (my) partnership with Dr George Beran, WHO veterinarian expert in rabies control.

Perhaps the single most important conclusion one can take from the results of the work in Ecuador is that the range of veterinary and educational skills needed to tackle this horrendous disease is possessed by very few if any individuals. The partnership between biotechnical and educational expertise is not easily achieved: there are some prejudices prevailing in parts of the veterinary fraternity that tend to undervalue the potential contribution of a professional educator to the whole process of combating disease. Too often, a health educator's knowledge of social

organization and community learning patterns is overlooked, and health education services are viewed as merely a vehicle for the "extension" of messages developed by the technical "experts". This may be a legacy of veterinary education. Like some practitioners of human medicine, a few veterinarians believe in the complete sufficiency of biotechnical solutions to disease. Dr Caicedo's inclusion of Victor Tapia every step of the way--from proposal, through basic research, to implementation--was both exemplary and highly effective. Neither could have succeeded without the close collaboration of the other.

Dedicated participatory researchers and nonformal educators may take issue with the claim that rabies control was achieved by community research/action. And the fact is that a small, central research, planning and implementation group made most of the decisions. Another fact is that less than one per cent of the population contributed information indirectly to the planners--and that contribution took the form of a knowledge-extractive survey. It is also true that the bulk of public participation in the campaign was in following orders (more like exhortations, actually) from central campaign management. This is a far cry from the barrio-by-barrio organizing, learning and mobilization that would be the preferred tools of the nonformal education trade.

However much one was inclined towards a more organic and less militaristic approach to solving a big city's problems (as was the inclination of each of the campaign planners), faced with the reality of the rabies control situation in Guayaquil, choices were limited. First and foremost, Guayaquileños were dying in agony from rabies: immediate action was demanded. Secondly, available resources were barely sufficient to mobilize sufficient vaccination crews, let alone to mount a barrio organization program in a city of almost two million. The only course open was to expend a great deal of effort in mounting a mass-campaign against rabies.

What distinguished this campaign from earlier and much less successful campaigns in Guayaquil was as much in the orientation of the planning team as it was in the presence of outside funding. They adopted the role of clearing house for community knowledge and action decisions. Traditional approaches were as much as possible forgotten, and an open-minded interpretation of the socio-ecological data was the starting-off point for campaign plans. The action, therefore, was dictated more by the realities of the rabies situation that actually existed in Guayaquil than it was based on centuries-old practices of Europe and North America. In at least this sense, the Guayaquil campaign was a community research/action.

Before reverting again to a focus on the Qforum, I would like first to discuss some of the things learned from the Guayaquil rabies control campaign as a whole. If it is true that, as some linguists have it, context gives meaning to content, then a discussion of other major gains in knowledge and experience from the rabies control campaign form necessary as part of the contextual background for conclusions drawn from the Qforum trial--a small part of the educational content of the rabies control campaign. This chapter will end with my thoughts on what could be done both to further refine and implement the Qforum as a mass-educational medium with a built-in group-learning process.

Socio-ecological Rabies Control

The success of the Guayaquil rabies control campaign in bringing the spread of this vicious disease to a halt within greater Guayaquil is largely a tribute to its director, Dr Fausto Caicedo Gomez, DVM. It was unfortunately to be the culmination of his long career devoted to the elimination of rabies from the city. As an outside advisor, I was not privy to the reasons for his removal as Director of Zoonosis control and Director of this highly effective rabies control campaign. I had to be content with the explanation that the reasons were "political" and had little to do with his devotion or competence.

The ecological survey that Dr George Beran and I were to help with was based on and included the accumulation of 17 years of detailed human and animal death and vaccination records, and the records of periodic dog elimination drives--not only for Guayaquil, but as far as had been possible, for the whole of Ecuador. This record, meticulously maintained over the years by Dr Caicedo, is probably unique in the developing world. It was this complete record, graphically depicting the disease in all its severity in Guayaquil, together with Dr Caicedo's record of competence that attracted the funding from WHO/Agfund/Radda Barnen for the campaign. Ecuador, with Tunisia and Sri Lanka, was selected as the site for one of the first rabies control campaigns based on an understanding of the local canine ecology--an approach pioneered by Dr Beran in the Philippines (Beran, 1983).

From the outset, the scope of the ecological survey in Guayaquil was broadened to yield data on a range of human and canine factors and interrelationships that could be used to create a picture of the socio-ecological situation supporting rabies. Subsequently, the survey of 1,943 households containing 10,543 persons (± 0.7 per cent of the population) was carried out in strictly geographically-randomized sample blocks. Pre-tested questions that were developed in preliminary interviews yielded a wealth of data regarding human and animal demographics, media behavior and rabies

knowledge, attitude and practices. Each factor was correlated to socio-economic class and geographic area, as well as to every other variable. (See Appendix A for a procedural guide derived from the Guayaquil survey.) The interpretation of these data, compiled on an inexpensive Kaypro portable computer (currently under $700 with printer and software), was achieved by means of simple statistical analysis and clarified by follow-up field interviews. A brief summary of some of the major findings and uses for the data follows:

Demographics (Human and Canine)

Rates of pet ownership by households yielded both the target for and subsequent yardstick against which the penetration of the vaccination campaign could be measured. Dog and cat ownership patterns, broken down geographically, enabled the planners to estimate the amount of vaccine and supplies that would be needed in each campaign sub district. Broken down by socio-economic class using a subjective but consistent and easily-repeated system of classification (See Appendix A), the dog ownership rates allowed campaign workers to estimate the number of animals block by block. These baseline dog population data were used to confirm the findings of a subsequent summative evaluation survey carried out in the wake of the vaccination campaign.

Mass Health Education

Through analyses of data captured on the survey forms, the educational support campaign planners were able to prioritize educational messages correlated with the media habits of knowledge-deficient target groups. Using these data it was possible to rate the deficiencies in each learning goal among the audiences of each radio and TV station (broken down by time of day) and the readerships of each newspaper in Guayaquil. This led to the production of precisely-targeted public service announcements and press releases. These data, added to the data on schooling levels achieved by the individuals responding on behalf of households, enabled the health educator to pinpoint pockets of illiteracy and low rates of access to electronic media. This allowed for more efficient use of a borrowed loud-hailer van to "soften up" those neighborhoods a day ahead and on the day of the vaccination crews' arrival.

Canine Ecology

From the point of view of canine ecology, the most significant outcome of the study was the discovery that killing street dogs--far from helping control rabies--in fact ensured the continued endemnicity of rabies and was responsible for sporadic local epidemics. "Focus control" had long been practiced in Guayaquil. One of its most basic components was the poisoning of all dogs found on the street

within a kilometer of each laboratory confirmed case of animal rabies. However, the records showed that, after the elapse of about four months, rabies re-emerged close to the original site.

The enhanced spread of rabies in the wake of systematic dog poisoning (before dawn, with baits of strychnine tablets wrapped in tripe) can be explained on the following basis:

1. Eliminating all street dogs in a Guayaquil neighborhood does not alter its environmental carrying capacity. The same supply of garbage, sewage and owner-provided feed still exists and will accumulate.

2. Into this relatively well-provisioned artificial canine vacuum (as abhorred by nature) come new dogs from three major sources: (i) Local puppies that would otherwise have succumbed in the competition for scarce resources, (ii) replacement pets purchased from itinerant pet sellers appearing on the scene of an extermination within a day or two, and (iii) dogs from surrounding areas, hard-pressed for food, migrating into this temporary paradise.

3. The average age of neighborhood dogs is reduced.

4. The proportion of dogs vaccinated in achieved previous years falls with the killing of older dogs and the arrival and survival of younger dogs.

5. The social stability of the dog population is disrupted as territories are fought over between surviving neighborhood dogs and the immigrants. The incidence of fighting and biting increases.

6. The young, mobile, aggressive and highly rabies-susceptible population that emerges in the weeks following an extermination, is a perfect breeding ground for the disease. It is only a matter of time before rabies either recrudesces from local incubation or is carried in on the fangs of a raging victim charging mindlessly into the neighborhood.

Future Rabies Control and Education Goals for Guayaquil

The discovery that rabies is supported by dog-killing in Guayaquil has led, somewhat indirectly, to the proposal of a new goal for future rabies campaigns there. In addition to the goals of vaccination target rates, a measurable goal would be to effect an increase in the average age of Guayaquil's dog population. The reasoning is that the longer a dog lives, the more chance it will have to be vaccinated in a series of (even less-than-perfect) campaigns.

This departure represents an entirely new approach to rabies control. Its implications for anti-rabies education will be far reaching. The traditional solution--getting rid of unwanted puppies--would not be sufficient in Guayaquil as (a) a large proportion of canine reproduction is unsuper-

vised by human intervention and, (b) more importantly, the carrying capacity of the environment would not be affected.

The effective elevation of the age-structure of dogs in Guayaquil can be achieved by a two-pronged social and ecological campaign that will have to rely heavily on education. Premature death in Guayaquil's dogs is due (now that dog-killing has presumably ceased) to disease aggravated by malnutrition. Longevity in Guayaquil's dogs, on the other hand, is associated with their status as pets fed entirely at home, rather than dogs allowed to scavenge. Cross-breeds survive better than either native or pure bred animals. Many of the key socio-ecological measures that could bring about an increase in the age of the dog population of Guayaquil would require major human attitudinal and behavioral changes on a mass-scale.

Were this goal to be seriously entertained as the key socio-ecological component in rabies control by vaccination, an outline of the major goals, objectives and strategies for the resulting new campaign would look like Figure 6 (overleaf).

Somewhat surprisingly perhaps, a major new objective turns out to be the <u>preservation rather than the destruction</u> of dogs. A concerted effort to turn Guayaquil into a community of dog lovers might succeed in achieving this goal indirectly. This presents quite a challenge, perhaps.

FIGURE 6

Outline for a Proposed Socio-ecological Approach to Rabies Control in Guayaquil, Ecuador.

OVERALL GOAL: Maintain a rabies-free status in the city.

STRATEGIC GOAL: Maintain a minimum level of 80 per cent immunity in the dog population.

BIOTECHNICAL GOAL: Vaccinate all dogs over the age of three months.

Objectives:

1. Carry out annual door-to-door vaccination drives, and maintain year-round, easily accessible and permanent vaccination clinics.

2. Continue clinical surveillance, and strictly limit ingress to the city to vaccinated dogs.

ENVIRONMENTAL GOAL: Reduce the marginal population of dogs.

Objectives:

1. Increase the rate of garbage collection and provide adequate sewerage throughout Guayaquil.

2. Block canine access to waste holding areas.

3. Destroy or fence-off denning sites and sources of harborage.

POPULATION GOAL: Raise the age structure of the dog population.

Objectives:

1. Increase access to basic health care for dogs.

2. Improve the nutritional status of dogs.

3. Raise the status of all dogs to pets.

4. Encourage the crossing of native dogs with pure breeds.

But, the elevation of the dog to the status of "man's best friend" had presumably been accomplished against a similar background of fearful rabies associations in Europe, hundreds of years ago.

Ironic too, is that the European and American "obsession" with pets may turn out, on closer examination, to have been a crucial part of indirect social control over rabies that became obscured with the success of vaccine and was left out of the rabies control "bundle" exported to the rest of the World.

Speculation aside, if raising the breed, health, status, and consequently the average age of dogs in Guayaquil proved on further examination to be desirable, a set of longer-range goals would have be added to existing annual campaign mobilization objectives. Great care would have to be taken in researching what these behavioral goals ought to be: it would not do simply to clone the Royal Society for the Prevention of Cruelty to Animals, the American Kennel Club and Cruft's in Ecuador. What ever these goals might be, their discovery and implementation will present major challenges to the ingenuity of the veterinary fraternity in Guayaquil.

Qforum: Future Development

The initial trial of the Qforum under field conditions in Guayaquil showed that the intervention has promise under the following circumstances:

1. The setting. The Qforum promises to serve well in an urban environment. Distributing the Qforum through a network of urban schools rapidly reaches a large proportion of the target audience of families of school-age children with little expenditure of travel time. But the added expense of distribution through widely-scattered rural schools might offset a lack of access to other mass media.

2. The audience. The target audience for interactive learning through the Qforum is, by nature of its distribution channel, schoolchildren, restricted to the families of schoolchildren. Potential penetration of the community of school-age families will largely be a function of the degree of universality of access to education.

3. Learning goals. The Qforum is amenable to carrying multiple and fairly complex learning goals. In addition, it is capable of delivering suitable information to the family circle under conditions that are an approximation of the interactive learning mode cited by nonformal educators and others as the ideal for adopting behavior change.

4. Messages. The success of each individual Qforum depends, I believe, on the relevance of the messages to the

family. Only those messages that address issues of very high interest to each family will prove to have sufficient drawing power to form family members into effective interactive learning groups. Suitable topics will therefore be limited to those of great and virtually universal self interest to families.

5. Required behavior change. The Qforum, like all other large-scale efforts to change behavior, can only be expected to promote new behaviors that are easily adopted. Filling out and mailing a postage-paid postcard is an example of a relatively simple behavior frequently solicited by direct mail advertising. In Guayaquil, the initial behavioral goal was for families simply to sit together and fill out a one-page form. But, while each of the other behavioral objectives--take the dogs in for vaccination, wash the site of a bite with soap, and so on--is an easily-adopted behavioral change, the aggregate represents a fairly complex preventive medical action by each family.

As the direct response to some specific educational needs that existed in its setting of origin, the Qforum, was ideally suited to meet the rabies education needs that existed in Guayaquil. However, I am confident that the Qforum has potential for application in other settings to meet other educational goals.

Given an urban setting with universal education, multiple and fairly complex messages concerning behavior change around a topic of high interest could be transmitted through the Qforum to members of a large proportion of the families of school-age children, gathered into natural interactive learning groups. The nearest logical extension of the Qforum intervention could be in the service of the educational needs of other serious infectious disease control programs.

A case could be made for using the Qforum in the fight, for instance, against acquired immune deficiency syndrome. Effective AIDS control requires a complex of sexual behavior changes. The very survival of a considerable proportion of the younger generation depends on their adoption of sexual mores and behaviors that are unfamiliar to their parents. As teenagers need parental as well as peer support to adopt a new sexual code of behavior, it is imperative that parents understand and support the change. As a fairly new disease of terrifying proportions and rapid spread, it is accompanied by fear and ignorance. Commanding interest from the fearsome aspects of AIDS, the Qforum process, distributed through the medium of teenagers and preteens, could be effectively targeted directly to the prime audience--young people as part of a family-learning group.

Application and Research

The Qforum is thus far an education tool of the field. It was conceived and tested under field conditions to meet a set of real needs. There were neither money nor personnel resources to allow for anything beyond pre-testing the questionnaire form, compiling and analyzing the data on the forms, and a brief schedule of interviews. Undoubtedly, parts of the questionnaire did not function as well as could be desired, but all indications are that, taken as a whole, the Qforum survived its gestation in the field well enough for further implementation and trial.

Sufficient experience was gained in the Guayaquil trial for it to have become in effect a pilot for a larger-scale planned implementation without further extensive testing. An important procedural change that suggested itself was the inclusion of the teaching guide for classroom use at the time the Qforum was distributed. Other changes would be limited to clarifying amendments to the wording of some original questions and possibly the substitution of other questions to reflect changing needs as regards learning objectives. However, it would be highly desirable to undertake more systematic testing as a means of improving the Qforum's performance.

Given the luxury of time and money, the precision and impact of the Qforum's delivery of interactive learning

could undoubtedly be enhanced by undergoing a series of tests. The first goal of testing would be to establish whether the desired behavior changes were effected, and to what degree. Before the Qforum can be seriously considered an effective educational instrument, it must be known with certainty whether Qforum participants actually translate commitment into action. I urge educators and social-change communicators to take some responsibility for creating an environment supportive of their behavioral objectives. Helping to plan and implement convenient field vaccination posts in a rabies campaign, for example, would help turn public commitment into the mass participatory vaccination action. To ignore the supporting infrastructure is tantamount to pushing inappropriate learning goals. Unachievable goals are, to say the least, disempowering for learners.

Perhaps the only practical way to determine the quality of the process engendered by the Qforum and the reactivity of the questions--both factors that could be expected to have a strong influence on behavioral outcomes--would be by observation. If direct observation were to be employed, the specific method would be chosen to match the skill of the observers. An evaluation on the basis of interviews conducted immediately after the event might prove to be more practical. One should be highly circumspect in

attempting to generalize the results of these tests (carried out under inevitably artificial circumstances) to the general population of Qforum participants.

There is nothing to prevent the Qforum from being amended and applied elsewhere and for different purposes. A few words of warning are in order, however. The Qforum, as presented in this study, is the instrumental expression of a complex set of learning needs and opportunities specific to the social and organizational factors surrounding the Guayaquil. This means that the whole intervention--process and content, goals and objectives--will need to be carefully thought through and tested before it is transferred to another place for another purpose.

Finally, in common with all powerful educational techniques, the Qforum is likely to draw fire from left and right--the claim being that it could, if it fell into the wrong hands, become a tool of forcible persuasion, or even of oppression. While I would be among the first to echo the opinion that education can be oppressive, I would hasten to suggest that the Qforum--dependent for effect as it is on a close mutuality of interests between designer and user--will fail miserably to compel anyone to do anything personally or socially undesirable.

Social Marketing, Nonformal Education and Participatory Research: Complement or Clash?

The blending of techniques from Social Marketing, Nonformal Education and Participatory Research discussed in this study resulted in a particular formulation--the Qforum. The primary motivation was pragmatic--the solution of a particular rabies education problem. A second objective emerged when the disparity of origin of the three approaches to social change was recognized. The question was: would differences in philosophies underlying these apparently disparate development strategies mitigate against the harmonious amalgam of techniques from each?

That the differences between the mindsets of health and development educators, communicators, and social marketers can be resolved by minor adjustments in philosophy has been proposed in Chapter IV. However, the Qforum experiment provided an arena for trying one of the many possible combinations of theories and techniques drawn from the three approaches. The results were, as we have seen, encouraging. With the exception of the belief in historical materialism adhered to by some participatory research proponents, no values seem to have been compromised. As to the historical-materialist doctrine held by some researchers: An epistemology of pragmatism proved adequate to accomplish rabies control in Guayaquil. The particular theories and tech-

niques drawn from nonformal education, social marketing and participatory research and combined into the design and implementation of the Qforum proved entirely compatible.

This study has substantiated the hypothesis that a questionnaire--purposefully designed--can be used as a powerful learning instrument. The inspiration to overturn the normal data-capture purposes of a survey instrument and replace them with learning objectives came from the critical theorists' castigation of traditional social science. The overall operational framework for the study as well as for the mass anti-rabies vaccination was derived from social marketing. Social marketing and nonformal education provided practical guidelines from mass media health education and the broadcast forum respectively. The order and content of the questions that guided the internal workings or process of the family learning groups were designed in the light of experiences drawn from nonformal education experiential learning and participatory research theories.

The Qforum achieved its goals in successfully "broadcasting" interactive group learning simultaneously to hundreds of family learning circles. The study showed that the cost per participant can be comparable to those of the open-broadcast mass media and much less than the cost of directly-facilitated group learning.

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