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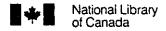
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CAN WE PRACTICE WHAT THEY PREACH?

THE APPLICATION OF THEORY IN RADIO AND DEVELOPMENT
COMMUNICATION

by

Amanda Hayne

A Thesis
Submitted to the Faculty of Graduate Studies and Research
Through the Department of Communication Studies
in Partial Fulfilment of the Requirements for the
Degree of Master of Arts at the
University of Windsor

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ABSTRACT

CAN WE PRACTICE WHAT THEY PREACH:

THE APPLICATION OF THEORY IN RADIO AND DEVELOPMENT

COMMUNICATION

by

Amanda Hayne

This thesis tests how theory can be practically applied when using radio in development communication. Explanations will be made on why some theoretical contributions cannot be practised in this field, and suggestions will be made on how theory can be modified to adapt to the radio environment.

Three concepts which would affect the radio environment were chosen. They are the Grassroots paradigm of development communication, radio as a communication device and the technical requirements of radio. In combination, these concepts represent the main concerns when using radio as the primary means of disseminating information for development projects.

Five development projects were selected from the International Development Research Centre, a Canadian development agency. These projects were analyzed to determine if theory was practically applied.

Three components increase radio's effectiveness and efficiency in development communication. The Grassroots model suggests that there should be accessible channels for audience feedback, and that the audience should have some input in the development message. Producers should also recognize the important components of radio as a communication device: the type of information and formats used should suit their audience. Radio messages must be part of an overall communication strategy. Extension workers and printed materials are two possible additional techniques which could form part of a communication strategy. Most importantly, producers must ensure that the message can be heard by the target audience.

To David,

who believed in me

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Finally, I would like to thank my family. My parents and brothers and sister were a great support. My nieces and nephew always made me laugh and reaffirmed what is important in life. To David, the most encouraging and understanding partner, who read and edited chapters instead of studying for his law exams. I hope I can return the favour one day. The support you have given me during the last year will never be forgotten. Finally, to Gustopher, who was there with me every step of the way. He proves that good things do come in small packages.

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"There is no 'perfect' medium. Each medium has its own advantages and disadvantages and in the vast market of mass communications they are all competing in their own imperfect way to be able to reach the largest number of people whom they wish to sell their product to or convince the rightness of their argument. An understanding of the strengths and weaknesses of his own medium can stand the practitioner in good stead..." (Rao, 1972, p. 47)

Overview

The purpose of development communication is to reach a group of people and change their behaviour. This behaviour change would correspond with some goal or objective which seeks to better a particular aspect of life or improve a group's standard of living. Theorists in this field have attempted to develop knowledge which would improve development communication, to make it more effective and efficient.

Radio is one means of achieving effective and efficient communication. This medium can reach large groups of people at one time. It is inexpensive. It avoids barriers such as illiteracy. In developing countries, these are valid and important issues. However, the radio environment does not exist in a vacuum. For radio messages to be effective, other issues must also be addressed.

The dominant paradigm in development communication is one of these issues. Grassroots participation has arisen from a Marxist critique of the modernization paradigm. In this model, the audience must play an important role in all aspects of development communication.

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The message design component is also an issue in the radio environment. There are several theoretical assumptions concerning how radio can be most effective. Types of information and the utilization of certain formats are concerns when examining the effectiveness of any mass media.

Finally technical requirements must be examined. One must assure that certain requirements are fulfilled to guarantee exposure of any message. Without exposure to information, change will certainly never take place.

Prior development projects will also be examined. Taken from the literature, these projects exhibit the traditional characteristics of the elements in each of the three fields mentioned above. By examining these projects, one can assess the valid parameters of each element.

Through the examination of the literature, I hope to demonstrate theoretical concepts which should be applied to the use of radio in development projects. These concepts will then be used to analyze projects from the International Development Research Centre, a Canadian development agency.

It is my intention within this paper to examine these particular issues and how they relate to development communication. The central pursuit of this paper will be to answer the question "is theory being practised?" A related question will

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be, "if theory is not being practised, then why not?" The theory itself will be assessed in terms of its suitability to its environment and suggestions made where appropriate as to modifications or alternatives that could be made without significantly altering the outcome of the theory (Bordenave, 1977).

This paper is not a study in development journalism, often described as 'development communication.' Therefore issues such as the reporting of certain incidents or stories, or the flow of global information will not be explored.

It is also important to distinguish between development communication and development support communication. While I will begin by outlining the broader category of development communication, the latter will provide the foundation of this paper. Since development support communication examines time-bound and message-oriented campaigns as opposed to educating the public with certain values (Jayaweera, 1987), its purpose is best suited for this paper. It specifically examines projects which have definite goals for improvement. Its purpose is to educate a segment of the population to achieve a certain objective, such as literacy, sanitation or family planning. Jayaweera (1987) specifically states that all agencies involved in international development are presently using the development support communication model to fulfil their objectives.

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To properly evaluate how radio can be used to meet the future needs of development communication, one must first examine the history of development communication. One must also consider how radio is effectively used within this sphere as well as within mass communications as a whole.

The Evolution of Grassroots Participation

Development communication became an important element in development for Third World states directly after the Second World War. During this period, the developing world was expected to evolve according to Western ideology and beliefs. During the past forty years, the concepts associated with development have changed. The ethnocentric notion in the modernization phase of development has been replaced by concepts such as audience participation and self-fulfilment. Development is now perceived through the ideology of the developing state, and not from an external source.

During the early 60's, Lerner (1967a, 1967b) and Schramm (1964) shaped the way people perceived development communication. Their views on development were framed within the ethnocentric view of this decade. The Western model of development was perceived as superior; each state should evolve according to the capitalist ideology. An individual could become a productive member of society through his or her purchasing power. Development here was equated with modernization, specifically related to the Western experience.

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One should not judge this phase of development as meaningless. Much was learned about relating information to the individual, packaging it in a way that the individual within his/her own cultural boundaries could both understand and relate to the information. Schramm (1964) believed that audience research was a necessary component in the success of any development project. To properly convey a message desiring behavioral change, one must primarily examine certain geographical, cultural and social constraints which could produce boundaries to effective communication. He knew that there was a dramatic cultural gap between the producers of information and those receiving it. Therefore, the source had to understand how the audience would relate to the problem the project wished to address. Producers had to understand how the audience would receive the message in terms of cultural symbols, nonverbal communication and language comprehension. Schramm (1964, p. 123) believed that "campaign after campaign have failed in developing countries because the campaigners misjudged or misunderstood the situation."

Schramm did not limit his understanding to the cultural distinctions of a society. He differentiated between mass media messages within urban populated areas and the rural media. Schramm claimed that there was a difference in the structure of the media itself as well as the differing cultural components of the two audiences. The urban media would have a faster pace, dealing with concerns primarily affecting the urban population. The rural media would be slower, perpetuated more through interpersonal contacts than through the mass media.

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The issues relevant to the rural population would not necessarily reflect the urban issues. Thus, development messages had to incorporate this difference as well (Kang, 1988).

Schramm provided great insight into the world of development communication. He taught the practitioners to understand the unique audience characteristics of developing states and the importance of tailoring a communication message towards these unique characteristics.

Cultural deterioration in many Third World states occurred simultaneously with Schramm's development beliefs. Because development was clearly equated with economic growth, the ideology behind many development messages was capitalist (Inayatullah, 1967). The forging of the industrial sector became the prime element in the development of a state (Dissanayake, 1981). Lerner expressed this sentiment clearly. Since the history of the Western World followed this structural format, then the Third World had to advance in this manner as well. He stated: "Development is usually and rightly concerned with the quantity of material things - resources and their allocation, investments and their returns, factors of production and consumption" (Lerner, 1967a, p.305-306).

Economic development was perceived as a natural mode of development. Lerner (1967b) stated that modernized or modernizing countries, regardless of culture, colour or creed, had chosen the economic or Western model as the

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foundation for their advancement. However Lerner did not make any connection to the West as a pertinent direct or indirect variable in this relationship. Lerner did not believe the West caused this shift towards economic values.

Problems quickly arose with the concept that development was equated with economic improvement because economic improvement did not transpire. In fact, the gulf widened between the economically wealthy countries and the poorer ones. The gap between the rich and poor within the developing states increased as well (Herrmann, 1979; Jayaweera, 1987; Rosario-Braid, 1986; Stover, 1984). Subsequently, there was a deterioration in the cultural and social systems of many Third World states. The materials for change were not accessible to the population of many of these states. Without them, economic improvement could not take place (Hornik, 1988).

This failure was not attributed to the lack of available resources. Blame instead fell upon the psychological attributes of the individual. Peasants within developing states were not capable of understanding the information. They were unable to understand that the purpose of the development message was to improve their lives. The purpose of development communication was to motivate or persuade the individual to adopt the behaviour change necessary to achieve economic progress (Dissanayake, 1981; Lerner, 1967b; Samarajiva and Shields, 1990).

Practitioners and theorists have learned from this experience. The modernization phase of development was not successful. If economic development was to succeed, the mechanics for change had to be available to the population (Hornik, 1988). To alleviate this situation, other forms of progress were introduced during the mid-seventies.

By the 1980's, social and human development, such as education and literacy, became important topics in development. Development was not simply viewed as economic progress. If the population could grow in terms of their own needs, they could advance in manners suited to their own society and culture (Dissanayake, 1981; Jayaweera, 1987; Mowlana and Wilson, 1990).

Social and human development was the foundation of the grassroots paradigm of development communication. Still popular among theorists today, the grassroots paradigm examined the participation of the population within all aspects of development, from planning to production to feedback (Rodrigo, 1989). Development communication still encompasses economic gains. A society must grow and adapt with economic progress. Simultaneously, social and human interests must be addressed. If the society does not advance in terms of literacy, education, family planning, or other social issues then economic progress is simply not possible (Dissanayake, 1981; Jayaweera, 1987; Mowlana and Wilson, 1990; Rao, 1972; Stover, 1984; Wang and Dissanayake, 1982).

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In accordance with the social factors of development, the grassroots paradigm also recognizes that change must be addressed from within. No external source should dictate change necessary for a society to become developed. This prohibition would protect cultural values and beliefs from external ideologies which might be threatening to the cultural well-being of the state. In the grassroots paradigm, the Western model of modernization is not seen as the ideal or exclusive model of development (Dissanayake, 1981; Jayaweera, 1987).

There are four main components in the grassroots model, each focusing on the audience: (1) The audience must play a role in the production of a development message. (2) There must be channels of feedback incorporated within the design of the development project. (3) The project itself must be initiated by a group within the state, and not from an external source. (4) The media must be controlled or preferably owned by the audience.

Audience Participation

The problem with many messages in the early stages of development communication was the lack of participation by the audience. Although the relevance of tailoring information towards the audience was recognized as early as Schramm (1964), theorists supporting the grassroots model maintain that the audience must participate in all levels of producing the message (Berrigan, 1981; Dissanayake, 1981; Hein, 1988; Mody, 1991). This requirement counteracts the belief that producers of information could " (put) voices of the people on air (to)

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compensate for the producer's lack of familiarity with the target audience."
(Theroux, 1978, p. 31)

Audience participation can occur on a variety of levels. The audience can participate at the production level. Mody (1991) claims that Western sources and external agents can train individuals within the population to use technical equipment. Individuals within developing states can acquire technical training through post-secondary education in advanced societies. Certain technical experts in different media can train people within their own residence. When using video cameras individuals can help narrate the message through their own cultural perspective. Individuals within the population can also assist in the script writing. Since development messages can use many formats (such as soap opera or lecture), individuals can write the script reflecting their cultural values. Local communicators would also relate to the audience better than external agents. They could use phrases or words which could recapitulate the mood of the message, words or phrases which might not necessarily be known or understood by an external agent. When examining the effectiveness of communication, this component is logical. It is very helpful in the preproduction stage where experts in certain media could refine the audience's initial input in a development message (Mody, 1991).

Prior to this theory of participatory development, language was not seen as a problem. The United Nations Educational, Scientific and Cultural Organization

states, "Despite the multiplicity of languages, the prevalence of common languages in various neighbouring countries enables domestic programmes to be understood across frontiers (Unesco, 1961, p.20)." Grassroots theorists believe that language is distinctive within and between communities. Projects should recognize this distinctiveness. Understanding how the audience can relate to the message is to communicate more efficiently (Hein, 1988; Mody, 1991).

But, there are certain drawbacks to this component. Time and financial constraints might make it difficult to fulfil audience participation in the production, decision-making and planning level. Audience participation could be viable if individuals are trained in using technical equipment prior to the development project itself. But many times this situation does not arise. It is difficult to believe that the rural population would have this type of training. Therefore, the technical training of certain individuals within the population would become a financial constraint. It would also be a time constraint, since it would take time to adequately train these individuals for a high quality message. Mody (1991) claims that development communication must be pragmatic to be successful. She suggests other avenues to reduce these constraints such as audience pretesting. This measure would ensure audience involvement in the production and decision-making elements of development communication while simultaneously reducing time and financial constraints.

But individuals can take part in the decision-making and planning level of the message design. Individuals in prominent positions can take part. Individuals with specific knowledge in a desired area who are also members of the community would be excellent sources of information. This is a level where individuals should be involved. They could provide local information about a situation. They could also provide credibility to the project itself, therefore creating a more accepting attitude from the audience itself (Hein, 1988).

Theorists in grassroots participation believe that the audience must participate in the production, decision-making and planning level of the development project. These are all important elements to strive for, since they ensure development would be framed within the context of the local situation. Yet, there are a variety of problems which can arise when accommodating these theoretical interests. The technical training of individuals is directly related to the time and financial limitations of the development project.

Audience Feedback

Feedback is an important component in any communication process. To ensure that any receiver has acquired the correct message, forms of feedback are incorporated within the design of the message itself. Without reaction, proper reception of information is difficult to obtain (Bordenave, 1977).

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In interpersonal communication, feedback can be obtained immediately through both verbal and nonverbal indicators. Unfortunately feedback of this type is difficult to achieve when using the mass media. In development communication, the mass media are preferred to interpersonal communication simply because they have the capacity to immediately reach a greater number of people (Hein, 1988). One must also have channels of feedback incorporated within the design of the development project itself to ensure the message is properly understood.

The concept of feedback was important to grassroots theorists because proper channels of feedback were not seen as essential in prior development projects. In rural societies, communication via mass media was one-way. Many of the messages were dispatched from a central unit and disseminated to the public. But this limited the information from rural locations. Because transportation and mail services were slow in these parts of developing states, communication from the target audience to the source was rarely acquired (Berrigan, 1981, Eschenbach, 1977; Magalang, 1976; Wang and Dissanayake, 1982; Webster, 1975).

Hornik (1988) claimed that in agricultural messages or programs, there were few means for farmers to relay their concerns to the producers of the information. This was not limited to the audience's comprehension of the message. Instead, farmers had concerns about other factors not addressed by the development message. Perraton (1981) found that listeners needed information

and explanation; instead, they were being instructed on how to perform agricultural operations.

Feedback ensures that the concerns of the audience are addressed. It also ensures that the audience understands the message. But for feedback to be effective, proper channels must be incorporated within the design of the project itself. A channel which is not accessible to the audience does not nurture feedback (Eschenbach, 1977; Rodrigo, 1989). For example, if the audience is not literate, letters written by audience members might not be an adequate reflection of the audience. Instead extension workers might provide a more well-rounded evaluation of the effect of the message. It is therefore important to design channels of feedback which are appropriate for the target audience.

Project Initiation

One of the key elements in the grassroots approach to development communication is the ability of the audience to develop through their own standards. Because the modernization model was derived solely on Western criteria, most projects during the 60's and 70's were initiated by external agents. Projects reflected the Western model of development as superior (Lerner, 1967a, 1967b). This model was detrimental to the development process as a whole. It was destructive to the cultural and social systems of a state since countries were advancing according to the standards of another state (Herrmann, 1979; Rodrigo, 1989).

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The feasibility of a development project was another problem in development communication. Not only was the cultural and social environment different than the Western world, but the geographical, economic and technological environment was distinctive as well. These differences varied dramatically within some developing states as well. Consequently, a project suitable for one environment might then not be suitable for another (Webster, 1975). It would also be detrimental to the facilitators of the project. Through the failure of development projects, external agents would lose credibility among the community for future development plans (Herrmann, 1979; Rodrigo, 1989).

According to grassroots theorists, the only way of eliminating this problem was to let the audience decide how they should develop. By letting the audience determine their future, problems of inflicting Western standards of development would diminish. Similarly, development would more likely reflect the attitudes and perceptions of the target audience, since their own concepts are being addressed (Carmen, 1989; Dissanayake, 1981).

Letting the audience decide on the development is a potential problem because the target audience might not possess all essential information. The audience may not be able to make a rational decision ensuring the well-being of their future because they lack a broad perspective. Simply stated, an external agent may have to identify problems within developing communities.

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Smoking provides an excellent example of the need for external information. The majority of the population in the developing world has access to cigarettes. Yet, they might not have access to the information on the detrimental effects of smoking. For many years, the Western world has gathered information on the harmful effects of smoking. It is detrimental for first-hand and second-hand smokers and the fetus. It causes cancer. These are facts the Western world has ascertained. To assure the safety of other people, this information should be shared with those of the developing world. A project which seeks to educate about the harmful effects of smoking would more likely be initiated from an external agent negating the project initiation element in the participatory model.

Some grassroots theorists have considered this situation. Carmen (1989) claims that a major component of development communication is knowledge empowerment. All individuals have the ability to gain knowledge from communication or discourse. This component of development communication is time-consuming. Yet it does propose a channel for the audience to obtain information to make rational decisions about the well-being of their community.

Monu (1989) claims that one responsibility of development communication is to provide rural communities with information. This information would then give them the power to make rational decisions about the future of their communities. Monu claims "meaningful participation depends on the availability of adequately and timely information (especially in more complex technical areas) to make

rational decisions in project planning, implementation and evaluation." (Monu,

1989, p. 10) Monu thus limited his concept of participation. Participation should

only be enacted if it is meaningful, if the audience has the information necessary

for them to make rational decisions.

Grassroots theorists believe that development projects should be initiated by

the target population themselves. This would then reduce the infiltration of

Western values on the unique cultural systems of the developing world. Yet some

grassroots theorists recognize the need for external sources of information,

especially when adequate means of obtaining information are not accessible to the

population.

Media Ownership

Grassroots theorists believe that the media should be owned by the

audience. If this is not feasible, the audience should have some form of control

over the broadcasting system. This concern arose because most governments in

developing states were authoritarian. Since this type of government dramatically

limits the forum for dissident views, concerns of the audience were not addressed.

If development projects do not correspond with government objectives, information

might not be disseminated to the target audience (Kasoma, 1990).

The problem of media ownership is not resolved by the capitalist nor the

Marxist models. The media in the capitalist model are privately owned. Media

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owners respond to market demands and broadcast information the public wanted. This type of ownership limits educational material, because it is unprofitable. But the Marxist model does not alleviate this problem. If the government controls the media system, they then control the information that will be broadcast. The government would want to maintain the status quo. No information which would threaten this position would be broadcast (Berrigan, 1981; Stephens, 1989). Therefore the only option in an open participatory system is audience-owned media (Kasoma, 1990). The problem with the capitalist and Marxist systems is that they do not encourage the exchange of information dealing with issues important to villagers. Each will have their own concept of what issues should be discussed, and these might not correspond with the needs of the rural population.

Kasoma (1990) believed that the audience could own the media through co-operatives. Information tools such as newspapers, video and posters could be jointly owned by a village or society. Thus individuals can be trained to operate equipment and perform the necessary skills to fulfil this obligation. In this manner, the audience would have control over what issues are addressed as well as the manner in which they are dealt with.

This is an excellent theoretical concept. But Kasoma does limit his theory due to practical reasons. Unless a society has the time, finances and expertise to achieve a successful system, co-operative media is not a viable solution. One would have to incorporate the time and money to assure proper training of media

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equipment. Kasoma limits this to feasible media for most developing nations: newspapers, video units and posters. He does not believe that a radio system is economically viable for most developing states.

Media ownership is therefore an important issue in the grassroots paradigm. Because of the problems associated with private and government owned systems, audience-owned media would be the best means of assuring that relevant development issues be addressed. Yet, there are many drawbacks to this type of system which do not make it feasible for many developing states. Time and financial constraints and the lack of expertise in many developing nations do not permit for an audience-owned media system. Although audience ownership is theoretically an excellent concept, it may not be practically applied.

To conclude, grassroots participation arose from the concerns of previous applications of development. Its purpose is to achieve self-reliance in the audience. The population within developing nations must become decision-makers to assure their cultural, social and economic sovereignty. Theorists in this paradigm believe this can occur through four different levels: audience participation in development projects, proper channels of audience feedback, audience-initiated projects and audience-owned media. It is the purpose of this paper to test if these concepts are practically applied.

Chapter two will present the theoretical components of radio as a communication device. Chapter three deals with the technical requirements of radio. In chapter four, prior development projects will be examined to illuminate the parameters of each of these components. Chapter five specifies the methodology which will be used to analyze five development projects from the International Development Research Centre. In chapter six, the findings of the analysis will be presented. Chapter seven presents conclusions and suggestions for further research. From this analysis, I hope to demonstrate if theory can be practically applied. I also hope to illustrate what components are necessary requirements in effective and efficient development communication.

Chapter Two

Radio as a Communication Device

Radio has many qualities which distinguish it from other media. It is strictly an auditory medium, relying exclusively on oral codes to transmit its message. There are certain benefits and restrictions of using radio to transmit development messages. Since these types of messages are primarily used for behavioral change of an audience, then radio must be examined as an educational vehicle. Therefore, how an audience can learn from a medium such as radio must be explored.

There are two benefits of using radio as an educational tool. First of all, an audience only hears the message when using radio. There are no visual cues present to transmit other information. This is beneficial when your audience might not be homogeneous. A heterogeneous population will have different perceptions of people, places and things. When listening to verbal cues, the audience can use their imagination to assimilate their own perceptions with the information transmitted by radio (Crisell, 1986). Therefore, a word such as "house" will connote an image different to people with different perceptions of a house. The information thus has a greater likelihood to succeed in communicating the intended message. McLuhan (1964) claims that radio is a hot medium. A hot medium requires high participation by the audience. Radio, since it relies on purely auditory means, requires the audience to use its imagination to complete or fill in visual stimuli (Kaplan, Adams and Singer, 1977).

Similarly, radio has been described as a secondary medium (Crisell, 1986; Kinder, 1973). The audience can listen to the radio and understand the message while performing other tasks. This is a well documented fact in the Western world, where listening to the radio is common when driving a car, reading a book, or other activities. Because radio relies on different cues to transmit its message, it allows the audience the freedom to undertake other tasks while listening to the transmitted information. This fact has been further assisted by radio's feasibility to adapt its locations. Since the advent of the transistor radio many decades ago, radio could adapt to audiences because it could operate on batteries. Therefore, there is no need for electricity or another stationary form of power to maintain its operation.

These characteristics make radio a unique medium. It is the only medium which relies solely on auditory means. But because of this fact, there are certain factors a producer of information must consider before developing any message. Since the purpose of using radio in development is to educate the audience, a producer must examine radio's ability to teach.

There are four main considerations when analyzing radio as a communication device: (1) The type of information presented must be conducive to radio. (2) Supplemental information must be available to the audience. (3) The formats that are effective when using radio. (4) Radio's ability to meet the needs of the audience.

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Type of Information

Certain types of information are not feasible for an auditory medium such as radio. When examining messages with the purpose of educating an audience, a producer of information must be aware of limitations within the medium itself. The purpose of development communication is to provide specific information to the audience. In development communication, the information the audience is learning is often new and unfamiliar (Rajasundaram, 1981). The ability of the audience to internalize the information becomes an essential issue in development communication (Bogue, 1979a).

These issues can affect the type of information presented. Although there are means of retrieving the message (for example, audio-cassettes) these are simply not feasible for many developing states. The justification for using radio is that it is affordable and feasible for audiences within the Third World (Schramm, 1964; UNESCO, 1962). However, if one starts designing messages where information is too complex to understand in one transmission, then the information must be adapted to this ephemeral medium. Without visual information, language must be explicit for the message to be clear to the audience (Crisell, 1986). Language must accommodate the audience by reflecting the dialect of the audience.

The producer of information also has to be aware of pace (Brown, 1986; Schramm, 1973). Johnston (1987, p. 14) claims, "audio is a linear medium, requiring the listener to follow the audio track as it was developed by the

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producer." Since one is not able to receive automatic feedback from the audience, one has no means of restructuring the message to accommodate the audience. If the audience is unable to understand the language or the concepts presented, then the pace must accommodate this unfamiliarity. If the audience is not homogeneous, most likely in the radio environment, then the message must be paced at the lowest common denominator. The slowest pace possible should be utilized to accommodate all factions of the audience (Bates, 1984).

Remembering these facts about radio forces one to determine which types of information are feasible for this medium. Detailed information is not suitable for radio. Since it is an ephemeral medium, its message is transitory. It is easier to forget the message in its entirety, as well as components within the message itself (Bates, 1984; Crisell, 1986). A development message can entail instructions informing the audience on an issue which might not be familiar to them. For example, instructions on fixing a mechanical device would be difficult to transmit effectively over the radio for several reasons. First, it would be difficult to remember all the information, let alone the order in which it is necessary to perform the function adequately. Second, the message might contain information incomprehensible to the audience. Jargon is especially troublesome to delete from a message, especially if it is written by an expert in a particular field. The language of the message must reflect the knowledge of the audience, and not the knowledge of the expert. Therefore words such as "sprocket" might confuse the audience because the audience might not understand its meaning. If the message

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continues and the audience is still confused about a previous detail, then it is more likely that they will not retain another component of the message simply because they were not concentrating upon the information. Instead, they were trying to interpret a previous detail (Bogue, 1979a). In essence, detailed information is difficult to transmit effectively using this medium (Brown, 1986; Harris, 1989).

In one experiment, children were exposed to stories through print, aural or audio-visual means. When exposed to messages aurally, children could recapitulate the basic themes of the stories. Yet they lacked the ability to retain specific details about the stories. Perhaps then, information which does not require retention of details is more appropriate for this medium. Messages regarding general attitude and behaviour change on issues such as family planning, sanitation or agricultural needs might be more suitable for radio (Brown, 1986; Harris, 1989).

So too is information which requires long term retention. Radio is an ephemeral medium (Bates, 1984). The information is not retrievable after the transmission of the message. Therefore, if one cannot remember certain components directly after the transmission of the message, then it is improbable that the intent of the message will be retained. Unless the information is made available to them repeatedly over the radio, or through some other media, retention of information might not occur.

Supplemental Information

The availability of supplemental information might reduce or eliminate the problems encountered when examining appropriate types of information for radio. Detailed information or information requiring long term retention might not be suitable for radio unless supplementary information is made available.

Supplemental information can be supplied through many different means. For a literate population, the print medium could provide an alternate source of information. Pamphlets, books and newspapers could work simultaneously with radio segments to reiterate or expand on certain areas of interest.

Supplemental information might also be found with extension agents. People working within the community itself might be familiar with the audience's needs and abilities. They could transmit information to the audience. They could also translate unfamiliar language, terms or concepts which had confused the audience. Because radio is a one-way medium, feedback is difficult to obtain (Chakrabariti, 1967; Crisell, 1986; Romiszowski, 1974). Supplemental information would reduce the limitations of this obstacle.

The use of supplemental information is not an unusual circumstance. Radio has often been used to supplement materials taught through formal education (Bates, 1984). An expert in a certain issue can be broadcast and used to complement or expand upon the materials used in class (Chakrabariti, 1967;

Kinder, 1973; Rajasundaram, 1981). Yet the teacher is available to respond to feedback immediately. He/she can observe the students participating in the function and immediately detect confusion in the audience. Without the presence of the teacher, immediate feedback of the message is impossible to obtain. Radio, in formal education, is used to supplement the teacher by providing examples or expertise that he/she is unable to provide (Romiszowski, 1974).

In essence, the role of radio might be transposed to an informational and motivational tool instead of an instructional one. If supplemental information is available to the audience, messages on radio can concentrate on creating awareness and interest on an issue. Messages can provide details on how the audience can get more in depth information on an issue, instead of teaching them the issue itself. In Western societies, radio provides the listener with advertising or primary information on issues, while also addressing how the audience can receive further information. Radio then acts in coordination with other media to educate its audience.

Formats Utilized

Many formats can be used to appeal to an individual. A format is how a programme is organized. The type of format used can affect attention span. To communicate properly, the audience must first be exposed to the message. Then their attention must be retained for the message to be understood (Zimbardo and Lieppe, 1991). The format must therefore appeal to the audience. Producers of

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information must study the communication patterns in a community and use a format conducive to this pattern. Choices are practically unlimited. They range from radio plays and soap operas to a lecture or speaker format (Bogue, 1979d).

Some formats may not be suitable for a particular audience. When using lectures, a common format for educational purposes, it is important to understand the educational level of one's audience. If the community has little formal education or training, then they will not have experienced any discipline in the art of listening (Bogue, 1979a). A producer can easily lose the attention of the audience if this format is used under these circumstances. There will also be attention loss if the pace of the information is not suitable for the audience (Bates, 1984; Jenkins, 1981; Reynolds and Anderson, 1992).

Different theories have been espoused about the effectiveness of attitude change. Some of these theories are relevant to the use of specific formats in development communication. An excellent example of this concept is social learning theory. Based on observational learning, the audience is expected to view the actions and behaviours of a credible source. The source is positively reinforced for a particular action. This action could reflect the intent of the development project. When the source is positively reinforced, then the audience will learn from his/her actions and hopefully modify their behaviour. This is also successful when the source is punished for behaving in a negative manner. When the source is punished, the audience will learn that the particular behaviour is not sanctioned

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by society. The audience will then choose not to behave in a manner which was negatively reinforced (Zimbardo and Lieppe, 1991).

Dramatic productions, soap operas and radio plays can educate their audiences through social learning theory. Since dramatic performers can evoke certain emotions through tools such as paralinguistics, radio can converse with the audience on a different level from the print medium. The audience could therefore "identify with the emotions and viewpoints of the participants" (Johnston, 1987, p. 38). Therefore, the producers can entertain their audience and keep their attention, while simultaneously teaching them about certain development goals (Bogue, 1979a; Bates, 1984; Maloney, 1979; McKown and Roberts, 1949; Rajasundaram, 1981; Reynolds and Anderson, 1992).

Another format which is not commonly believed to be educational is music. Most Western teenagers use radio to listen to music (Brown, 1986; Lazarfelds and Stanton, 1949). Because music suits radio so well, it can be used to transmit development messages. Lull (1985, p.364) claims, "Music plays a variety of roles as an agent of social utility and as a source of entertainment." Studying a variety of African tribes, Lull found that history, law and other social values were transmitted through musical communication from one generation to the next. Since music affects an individual cognitively, physically and emotionally, it is a potent agent of socialization. This format should be seriously considered as an excellent means of transmitting information in development communication.

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It is important to note that educational radio does not mean that producers of information must incorporate certain stereotypical formats. In fact, it has been established that the lecture format may not be conducive to audiences without formal educational training. Through theories such as social learning, researchers have learned that programs which entertain can also teach the audience about acceptable behaviours. Therefore, a variety of formats are acceptable for development communication. Most formats are acceptable if the producers are appealing to the audience through quality programming (Bogue, 1979d).

Needs Gratification

When examining radio as a communication device, needs gratification plays an important role in the effectiveness of communicating. One can examine this issue in two separate ways. The first is through the medium itself. Is the medium of radio fulfilling certain needs of the audience? Does the audience use radio for information or for education? The purpose of development communication is to educate the audience to adapt their behaviour to appropriate means. Is radio, therefore, capable of fulfilling this goal?

Uses and gratification research has attempted to address the issue of how the audience uses the media to fulfil certain needs (Katz, Blumler and Gurevitch, 1974). Radio fulfilled life-sustaining and entertainment needs like weather, traffic information and music. The majority of these studies were performed comparatively with other media. These studies also occurred in the Western

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World, where other forms of media are accessible to the average person. In developing nations, other media would not be available to everyone, specifically in rural communities. Therefore, radio may be used to fulfil other functions in a community which might not reflect those in the Western World. In developing nations, "radio listeners respect the radio as a source of information; they believe it is a trustworthy and credible informant" (Bogue, 1979d, p. 4).

In development communication, we need to examine how the audience's needs are being addressed by the communication message itself. Maslow (1943) once claimed that primary needs must be attended prior to addressing hierarchial needs. Therefore physiological needs such as food, shelter and safety take priority over needs such as self-fulfilment and self-actualization. At the core of this theory is common sense. If one does not have enough food to eat or feed his/her family, this is an essential element of survival. Until this need is fulfilled, no other need will take priority in an individual's life (Rajasundaram, 1981).

This can have a dramatic effect on a message in development communication. To be effective, fundamental needs must first be satisfied. Therefore, producers of information should always examine the needs of the audience. Development communication should therefore reflect these needs. If it does not, then effective communication will be obstructed by other elements in the environment. Although the message itself may be warmly received, the audience

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may not adapt their behaviour due to other, more substantial pressures (Hornik, 1988; Rajasundaram, 1981).

In conclusion, radio has the potential to be an effective means of communicating. However, certain elements must be considered if communication is to be successful. The types of information broadcast must be suitable to ephemeral media. Supplemental information should be available if the audience is unclear or has forgotten the message. The format utilized, or how the information is packaged should reflect the medium as well as the audience. Finally, the message itself should fulfil the needs of the audience to be effective.

Chapter Three

The Technical Requirements

The previous chapter appraised how radio can be used effectively to gain and keep the audience's attention. Yet in developing countries the issue of exposing the message must be considered a primary element.

The purpose of development communication is to persuade the audience to change their behaviour for a better life. Zimbardo and Lieppe (1990) consider exposure of the message to be the first step in the persuasion process. The audience must hear the message for persuasion to occur.

There are four main barriers to the exposure of the message: (1) The audience may not be able to receive the message. (2) The state may not have the transmission capabilities to reach the audience. (3) The state may not be able to fund the media system required by the development project or the development project itself. (4) The social system of the state might restrict exposure of the message to the target audience.

Reception Capabilities

The audience's ability to receive the message is an essential component in communication. Many studies in development communication focus on how to effectively communicate with the target audience. Since exposure of the message is the first step in development communication, the availability of radio receivers is

essential to communicate effectively. Few studies record the availability of radio receivers.

Approximately 80% of the African continent has radios; 90% of the African population has access to messages on radio through village radio sets (Theroux, 1978). Although Theroux asserts that access to radios is not a problem in the developing world, some analysts would disagree. For example, for 1000 inhabitants, Benin had 50 receivers, Burkina Faso had 25 receivers, the Central African Republic had 62 receivers, Guinea had 34 receivers, Bhutan had 15 receivers, Nepal had 33 receivers and Yemen had 36 receivers (UNESCO, 1991). Twelve states do not meet the UNESCO minimum requirement guidelines, set in the late 1950's at one receiver for every twenty inhabitants (UNESCO, 1961). An additional 18 states have only one receiver for every ten inhabitants. Many developing nations fall dramatically low of the 80% figure given in Theroux's study.

UNESCO counts only the number of radios. It does not distinguish between access to the radio sets and radio sets in operation. Some of these receivers will not be operational. Without technical training and appropriate components, it would be difficult to fix broken receivers. Laflin (1989) lists numerous factors which can affect the reception capabilities of the audience. Elements such as dust and heat, power surges and outages can destroy radio receivers. These elements cannot be controlled by the audience. To overcome these situations, technical assistance must be available and economically accessible to radio owners. The cost

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of batteries can also affect the reception capabilities of the audience because batteries may cost too much (Okwudishu, 1988).

In producing development messages, organizers must know if the audience is capable of receiving the message. If the audience does not have access to radio, then radio should not be used as a primary means of disseminating information.

Transmission Capabilities

Information must be tailored to the geography of the region. Geography affects the number of transmitters necessary. Transmitters must be located in areas where information can be received with minimal interference. In mountainous regions, transmitters should not be situated in valleys because the mountains would then block signals. Also, elements such as iron ore in the ground will affect the clarity of the message. Other frequencies, both national and international, can affect the transmission of the message (Laflin, 1989). Transmitters and the strength of these transmissions must be situated to send signals clearly.

The broadcast frequency used by the state would also affect the clarity of the message. A state could use frequency modulation (FM), in which the radio wave is constant while the frequency is fluctuated. A state could also have a broadcasting system which uses amplitude modulation (AM), where the frequency is kept constant while the radio wave is fluctuated. AM reaches a wider audience

then FM, but is more sensitive to atmospheric and electrical conditions. Its signal
is not as clear as the FM system (De Kieffer, 1965). FM provides a clearer signal
and is not as susceptible to atmospheric conditions as AM.

Economic Feasibility

All developing nations have an operating broadcast system. This broadcast
system can be used to disseminate information for development purposes.
However, states probably cannot afford to implement a new or updated system to
support one development project. A project organizer must therefore operate
within the present regional or national broadcasting system.

Recently, developing states have implemented local radio stations. To do so,
a village must be able to raise approximately $1,000.00. According to Stephens
(1989a, p. 7), these funds would provide a four channel mixer, two microphones, a
mike stand, one turntable, and headphones. For $2000.00, a local radio station
would be equipped with the above, plus a solar power transmitter and the capacity
to reach an audience up to thirty kilometres more than the $1000.00 operation. A
local radio station would benefit the audience because it would provide local and
relevant information that national stations could not.

Personnel expenses must also be added to the cost of operating a local radio
station. A manager, an accountant, a program director, producers and technicians
are all required to operate a full time, quality radio station (Laflin, 1989). If a

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village cannot afford the operating or personnel expense of a local radio station, it is infeasible. A producer would then have to work with a regional or national service to fulfil the objectives of the project.

In addition to the economic feasibility of the media system, the state or the audience must be able to fund the purpose of the project itself. Hornik (1988) claims that economic feasibility is a barrier in any form of development communication. Tools and materials needed for the implementation of the project must be accessible to the audience. The state must be able to fulfil the goals and objectives of the development plan by providing the tools for change or ensuring that the audience can afford these tools. If these tools are not provided because the state or audience cannot afford them, then the project is not economically feasible.

A development project must adapt to the situation. If the rural population does not have access to community local radio, then the project must use the regional or national service. Organizers must learn to frame the development message in the medium which is most accessible to the audience. Organizers must also ensure that the audience is economically capable of adapting to the goals of the development project.

Social Feasibility

Developers must consider the social system of the audience to increase the exposure of the development message. Language is one element in the social system which can affect exposure. For a message to be effective, the language must be appropriate to the audience (Bogue, 1979a; Friend, 1988; Rajasundaram, 1981). In developing countries, the target audience might speak several different languages, as well as different dialects within each language. Producers of information must determine and use the most appropriate language(s) that the target audience speaks.

Targeting the correct audience is another factor which can inhibit exposure to the message. Before the participation model of development communication, diffusionism was a popular means of disseminating information. Information was usually disseminated to opinion leaders, who would convey the message to the rest of the population. This was not an effective means of development communication. Opinion leaders would not transmit the information to everyone or would not transmit the correct or entire message to the community (Carmen, 1989). Producers of information must specifically target their audience for development purposes. If the target audience is not directly exposed to the development message, then effective development communication is not feasible.

Exposure is an essential element in the development process. The target audience must be exposed to both the message itself and the tools required for change.

Chapter Four

Lessons Learned From Development Communication

Before testing recent development projects against the criteria, it would be helpful to consider their application in previous projects. Through an extensive review of the literature, projects were chosen which reflected characteristics within the tradition of each of the aforementioned components. These projects incorporate to varying degrees the criteria established above. Their outcomes should help to test the parameters of the three components used when examining radio and development communication.

Why Radio in Development Communication?

Radio has been used in development communication, specifically because it has the power to reach large groups of people simultaneously. By contrast, extension workers could only contact one village at a time. When dealing with an issue of national importance or of a timely nature, the mass media can best disseminate this information (UNESCO, 1962; Jayaweera, 1987; McAnany, 1976; Stevenson, 1988). In mountainous or remote areas, or regions where roads are impassable or nonexistent, radio is capable of reaching these people. Therefore, radio can eliminate both geographic and distance variables. It has the potential to contact a number of people with minimal exertion (Jayaweera, 1987; Hein, 1980; McAnany, 1973; McKown and Roberts, 1949; Rahim, 1976; Schramm, 1964; UNESCO, 1962).

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Soon after the advent of development communication, radio became known as "man's most universal medium" (McAnany, 1973, p. 1). Unlike other mass media, such as television, radio was accessible. Radio sets and maintenance were inexpensive. With the advent of the transistor radio, electricity was no longer a requirement. Dry cell batteries could operate the radio making it the only obtainable mass medium (Abel, 1983; Jayaweera, 1987; McAnany, 1973; Schramm, 1964; Stevenson, 1988).

Radio also eliminated literacy as a condition for effective communication. Print media required literacy to achieve successful communication but during the mid-60's much of the Third World was illiterate. Illiteracy, still common today, affected mainly the rural population. Development communication utilizing print excluded its target audience. In radio, the only condition for receiving the message was the ability to listen (Dale, 1954; Maddison, 1971; Schramm, 1964). Radio was also adaptable to different formats and appeals (Schramm, 1964).

Since radio is adaptable to many technical forms such as AM/FM and short wave, it could also transmit signals from afar and from other countries. The national broadcast system could thus be supplemented by signals from other countries providing an alternative view (Webster, 1975; Stock, 1979).

From these arguments, radio is the most accessible medium to people of developing countries. Since mid-century, radio has been used to disseminate

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information to rural populations. These experiences have provided justification for many theoretical concepts in development communication. To understand how these concepts have arisen, one must first contemplate how radio has successfully been used in the past. One must also study how radio has been ineffective in disseminating information, since that helps prevent theorists and practitioners from committing future mistakes.

GRASSROOTS PARTICIPATION

The grassroots paradigm, as discussed in Chapter One, arose from the failures of development communication in the modernization era. In recent years, many projects have tried to implement the concepts espoused by the variety of theorists supporting this newer paradigm.

AUDIENCE PARTICIPATION

Grassroots theorists claim that the audience should participate in the decision-making, planning and production elements of development projects (Berrigan, 1981; Hein, 1988; Mody, 1991). An 18-year investigation of water utilization units in Ghana, Radio Enriquillo in the Dominican Republic and Mahaweli Community Radio in Sri Lanka have all attempted to incorporate these ideas into their development projects.

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The Water Utilization Project (WUP) in Ghana[1]

The CIDA/GWSC approach to recruitment differed from prior development projects. The project employed many male and female members of the community to ensure that the community would be informed of all aspects of water purification. By allowing community participation in the project itself, the target audience had more access to information about the benefits of using clean water.

The WUP project had to employ members of the rural population of the Upper Regions to fulfil its objectives. The hand-water pumps were maintained by members of the community, after receiving training on proper upkeep. Community Water Organizers and Village Education Workers were recruited and trained to provide supplemental sources of information to their communities. During the Radio Forum series, the WUP project provided radios to the Community Water Organizers to ensure that the radio series was heard. One man exclaimed, "how proud he was that his wife had been chosen to work on the programme. The

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[1] The Canadian International Development Agency (CIDA) has worked with the Ghana Water and Sewerage Corporation (GWSC) to provide clean water facilities to the rural populations of the Upper Regions in Ghana. The initial purpose of the project was technical, specifically to design and implement a pump system that would provide clean water to the population. In the mid eighties, an educational component was added to the many objectives of the project. This was to ensure that the target population would see the benefits of using clean water facilities to guard against many health problems, such as dehydration, malaria, diarrhoea and guinea worm. These diseases can heavily attribute to morbidity and mortality rates. One of the primary means of disseminating information to the public about the use and benefits of the hand water pumps was through rural radio forums (CIDA, 1990).

recognition, he said, had made her an important person in their village" (CIDA, 1990, p. 127).

Radio Enriquillo, Dominican Republic

Radio Enriquillo, in the Dominican Republic, operates on a participatory foundation. The news and program sources for much of the information broadcast on this radio station originates from the rural audience. Development issues reflect and consider the needs of the audience by broadcasting live interviews with the audience. Many women and youth groups are directly tied with this station (Camilo, Mata and Servaes, 1991).

Mahaweli Community Radio, Sri Lanka

Mahaweli Community Radio, in Sri Lanka, is directly involved with an agricultural development project specializing in increasing the growth of rice paddies and other food products. Radio producers have opted for a unique way to disseminate information to the target audience. Producers go directly to specific villages to hear concerns of the community. The community speaks freely about their needs and concerns, and possible solutions to their agricultural and food problems. They, along with the radio producers, create the program dealing with the development issue. The actors in the radio productions of folk songs, dramas or poems are community participants. The audience approves the final version of the radio production. Therefore, the producers have ensured that the programme is reflective of the participants in the community (Karunanayake, 1987).

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The concept behind these projects or radio stations is community participation. Producers of information believe villagers will be less resistant to change if they are involved in the development process. Yet the community is able to participate in the creation of development messages because of the unique radio stations available. Without the availability of community radio, audience participation in development messages would be more difficult to obtain.

AUDIENCE FEEDBACK

According to grassroots theorists, feedback must be incorporated into the design of the development project (Bordenave, 1977; Hornik, 1988; Magalang, 1976; Mody, 1991; Stover, 1984). This ensures that the message is properly received and understood by the target audience. It also determines whether the audience has adapted their attitudes and behaviours according to the development message. Yet, feedback has not always been perceived as an essential element in development projects. Rural Radio Forums, the Ghana WUP project and an agricultural programme in Nepal all demonstrate different mechanisms of feedback.

Rural Radio Farm Forums: Ghana

Feedback from open broadcasting is difficult to achieve. Historically, one way of combatting this dilemma is to use radio farm forums that have been instituted in many developing nations. Radio farm forums consisted of groups of people getting together to listen to radio programmes. They then discuss elements

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and problems within the programme which reflect problems in their communities. Solutions to a variety of health, agricultural and social problems could arise from these group discussions. The concept for rural radio forums began in Canada, and this format has spread to a variety of developing nations, specifically India and Ghana (McAnany, 1973).

Ghana has utilized radio forums for many rural development projects. These projects range from community farming and animal breeding to family and health education. Yet feedback in all of these projects was primarily obtained from letters written by forum groups, or through observations made by community extension workers (Boden, 1979). No formal means of feedback were incorporated within the design of the projects. Therefore, successful evaluation of projects could not transpire. Although producers and field workers could supply some information, the audience had no direct means of responding to the development message.

WUP Project: Ghana

The WUP project incorporated mechanisms of feedback within its 18-year span. Through feedback, the goal of the project changed from a technical project to one focusing on education through observations made by Community Water Organizers, who were members of the community, and other field extension agents. They had noted that although the technology of the project had been implemented it was not being used. Therefore, project developers had to educate the women in

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the villages, who were the primary users of water, about the benefits of using clean water (CIDA, 1990).

To ensure that the audience understood the benefits of using clean water, CIDA and GWSC conducted interviews with people in 30 villages. Since women were the primary users of water, adult women comprised the majority of respondents. Most respondents still had incorrect knowledge about the sources and treatments of many common diseases, specifically diarrhoea. Radio programmes, training sessions and group discussions were then formulated to combat this ignorance about the benefits of using clean water. This project demonstrated that "social change does not automatically occur as a result of technical input like the installation of hand pumps. Development efforts aimed at improving the quality of life cannot be divorced from appropriate education and a well thought out communication strategy" (CIDA, 1990, p. 166). Through mechanisms such as feedback, producers of information were able to discover what the target audience presently knew about certain issues, and were then able to adapt any further communicative messages accordingly.

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Nepal's Agricultural Programme [2]

One of the primary means of obtaining feedback from the target audience in the Nepal agricultural programme was through letters written by listeners. However, the majority of Nepalese are illiterate (Dikshit, 1979). In the late 1980's, only one third of the population of Nepal could read and write (IDRC, 1989c). Letters, then, would not be an effective way of achieving feedback from the audience. Feedback would only reflect a certain segment of the population. The literate population may reflect different educational, economic, social and cultural levels than the illiterate population. Therefore, the feedback generated would not assist in an effective evaluation of the project.

Incorporating measures of feedback is essential in the design of any development project. Open broadcasting encompasses a large part of development messages. Yet, little is known about the success of open broadcasting because feedback is difficult to obtain from populations who are illiterate, or are difficult to reach because of poor road and postal facilities (Perraton, 1981). Still, producers of development messages should provide for some mechanism of feedback to ensure

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[2] The agricultural programme in Nepal sought to increase the knowledge of Nepalese about issues pertaining to agriculture. It began in 1966 with a 15 minute broadcast which was aired 3 times a week. The programme was to reach approximately 12 million people in a 90,000 square kilometre range. The target audience was primarily farmers, but also included other people working or interested in the agricultural field (Dikshit, 1979).

that the message is properly understood by the audience. The Ghana WUP project had to adapt its objectives because of feedback from the target audience.

PROJECT INITIATION

Many grassroots theorists claim that development projects should be initiated from the target population. This would ensure that foreign values would not affect the cultural well-being of the audience's community (Bordenave, 1977; Hornik, 1988; Mody, 1991; Stevenson, 1988; Stover, 1984). Nepal's agricultural programme, Liberia's health programme and Mahaweli Community Radio all reflect different levels of project initiation.

Nepal's Agricultural Programme

The Ministry of Agriculture, along with the Food and Agricultural Organization, formulated the concept of Nepal's agricultural programme (Dikshit, 1979). Like many projects of the 1950's and 1960's, government agencies initiated development projects to fulfil certain government objectives. Therefore, information in the programme would have to reflect the goals of the government. This might not necessarily be in the best interest of the intended audience. During this specific project, the agricultural programme was only broadcast in the Nepali language, as this was thought to "strengthen national and cultural unity" (Dikshit, 1979, p.20). In doing so, the programme eliminated other regions within Nepal which did not speak the national language. Since the project was initiated and

primarily funded by a government organization, the project also had to adhere to other government objectives.

Liberia's Health Programme[3]

Liberia needed to combat diseases related to oral rehydration therapy (ORT) and childcare. The Ministry of Health and Social Welfare, the United States Agency for International Development, and many donor agencies in Liberia grouped together to create a radio programme dealing with these issues. Although government agencies, as well as external sources, assisted in the development project, donor agencies, specifically the medical profession, assisted in the design and implementation of the concept (Kweekeh, 1987). These donor agencies would have greater experience with the audience than external or government ministries. They would be able to voice the concerns of the community, rather then fulfil other objectives. Although the project was not initiated by the target audience, the donor agencies, having greater contact with the audience, reflect a positive step in project initiation.

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[3] In the mid-80's, Liberia constructed a new oral rehydration clinic in New Kru Town because diarrhoea is a common disease in children under the age of five. The Liberian Ministry of Health requested a private radio station to prepare a thirty minute programme to promote the centre. The purpose of the project was to create awareness among mothers about the facilities in New Kru Town, and the dangers of diarrhoea and dehydration (Kweekeh, 1987).

Mahaweli Community Radio

The programmes on Mahaweli Community Radio were initiated by the audience who participated in all levels of the production. Radio producers visited the village for ideas concerning development communication, and members of the community expressed their feelings about certain issues. An example of the close relationship between radio producers and the audience is the mass marriage registration camp of 1986. When radio producers came to speak with the village priest about potential development programmes, they were informed about the lack of legal marriages in the village. A radio programme was produced to educate the Sri Lankan community about the requirements and benefits of legalized marriage (Karunanayake, 1987). The village priest was responsible for the initiation of this project.

Project initiation is an important component of development according to grassroots theorists. External sources or government agencies are perceived as imposing certain values on the target audience. The audience must develop according to their own goals, based on their own cultural values (Bordenave, 1977; Hornik, 1988; Mody, 1991; Stevenson, 1988; Stover, 1984). Although government agencies and external sources may have information and knowledge which might benefit the audience, grassroots theorists still believe that the audience should determine their own goals and objectives.

MEDIA OWNERSHIP AND CONTROL

According to grassroots theorists, the audience should control or preferably own media systems within the state. This would decrease the difficulties associated with either a government or privately owned system. The only system which would best reflect the views and needs of the audience would be an audience-owned and controlled system. Nepal has a government-owned and controlled system, the Philippines has a number of development programmes operating on a privately-owned system, while Kayes Rural Radio in Mali is a government-funded, audience-controlled station.

Nepal: Government-Owned and Controlled

During the late 1960's and early 70's, the government of Nepal ran an agricultural programme. At this time, Nepal had only one radio station which was government-owned and operated. Although the government was accepting private support, this particular programme was solely initiated and funded by the Ministry of Agriculture. The government controlled both the project and the station which had an effect on the broadcast language used for the project (only Nepalese was used). Since the government had vested interests in areas other than agriculture, the effectiveness of the project was limited (Dikshit, 1979).

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Philippines: Privately-Owned

The Philippines has operated a primarily privately-owned broadcasting system since 1931. Although much broadcast time is filled by serials, commercials and music, many Philippine stations also incorporate development messages into their broadcast schedule. *Cotabota Ngayon*, an information programme, is an example of local radio broadcasting specializing in the development of specific communities. The underlying concept was to air local people's views on a variety of issues while offering a forum to air public service announcements concerning the community. Little evaluation has been done on this particular type of programming, except for research provided by and to the commercial advertisers. However, producers were constantly in contact with the audience. Letters and interpersonal contact from the community show evidence of strong support for this type of programming (Boden, 1979).

Mali: Community Radio

Kayes Rural Radio in Mali represents a growing trend in developing nations - the initiation of community radio systems. Funded by government or external agencies, these stations are controlled by the audience. This specific station in Mali is operated in conjunction with several rural associations, as well as specific village associations. Each participates in the decision-making and planning elements of production. Although primarily funded by an Italian organization, material broadcast on this rural radio station is derived solely from the needs and views of the audience (World Association of Community Radio Broadcasters, 1991).

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When examining the distinct elements of grassroots participation, audience participation, audience feedback, project initiation and media ownership and control, it is evident that all elements affect each other. For example, if the audience owns the media, automatic forms of feedback are incorporated in the development message; Mahaweli Community Radio and Kayes Rural Radio are excellent examples. Yet, the less access the audience has to media ownership and control, as is the case in Nepal, the further divorced the audience is from the project. Time and financial constraints may play an important role in this relationship. If the audience has relatively little funding to support a radio system, then access is denied. Private radio can provide access to the audience as in the Philippines, probably because it makes good business sense.

RADIO AS A COMMUNICATION DEVICE

Radio has much to offer development communication. It has been used in a variety of ways in developing countries which do not necessarily reflect the experiences and practice of the Western world.

TYPE OF INFORMATION

In developing countries, radio has been used to educate the rural population where geographical access has been limited. Radio has been used as a teaching tool for courses such as literacy and mathematics. Radio learning projects in Honduras, Bolivia and Papua New Guinea are programmes where radio was used as the primary educator in mathematics. Many interactive radio schools have been

deemed very successful. However, other projects have illustrated that radio cannot easily convey detailed information, as demonstrated through an AIDS awareness campaign in Rwanda.

Radio Schools

In Honduras, Bolivia, and Papua New Guinea, interactive radio has played an essential role in teaching a variety of courses, specifically mathematics (Edgerton, 1987). Each school day, children listened to a radio programme specializing in arithmetic, language and science training. The same type of programme has been broadcast in developing countries around the world. When teachers were asked to comment on the benefits of using interactive radio, they claimed students were more eager to learn, were more attentive and had greater overall knowledge about specific subjects (US-AID, 1988).

AIDS Education in Rwanda[4]

Mathematics and other detailed information can be taught through radio but some information cannot easily be interpreted nor remembered by rural populations. While radio schools have successfully taught complex materials, the use of open broadcasting for this task has not been as successful, for example the

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[1] In 1986, The Ministry of Health and the Red Cross produced a radio programme on AIDS education in an attempt to change the sexual behaviour of high risk groups. The programme consisted of short radio spots, run daily, and six one-hour programmes. They also conducted a two year study on the effectiveness of the AIDS programme by conducting surveys to the general population following the completion of the radio programme (Carael, Nkurunziza, and Almedal, 1987).

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use of radio to teach AIDS education in Rwanda. After transmitting a number of programmes on AIDS awareness, few people understood how AIDS was transmitted (Carael, Nkurunziza, and Almedal, 1987). Although the information was not as detailed as that transmitted by the radio schools, the population still had difficulty absorbing the material.

SUPPLEMENTAL INFORMATION

Perhaps the aforementioned differences between open broadcasting and radio schools can be explained by the use of supplemental information. Printed material, and extension or field workers can all act as agents of supplemental information. Radio schools can easily provide supplemental information where the target audience is all in one location. Providing materials or people is more difficult when using open broadcasting, where the audience is the rural population.

Radio Schools (SACI/EXERN)

A radio school, such as the SACI/EXERN project in Brazil[5], provides many materials to individual students. Radio sets, batteries, maintenance of the sets and power sources are provided. Printed materials or text books are available to

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[5] In the early 70's, radio was used in Brazil to teach in a number of their urban and rural schools. The experimental project was entitled EXERN and was performed in Rio Grande do Norte. Through the use of the 'language of the medium' (p. 18), students learnt a variety of subjects, specifically mathematics. Schools were provided with radio sets, batteries and maintenance. Teachers were supplied with printed materials which corresponded with the radio programmes (McAnany, Batista and Oliveira, 1980).

students. Extension workers or the teachers are also accessible (McAnany, Batista and Oliveira, 1980). The target audience therefore has a number of mechanisms for supplemental information. If questions or concerns arise, answers are provided through a variety of sources.

Open broadcasting differs in some important ways. There are few mechanisms of supplemental information available to the target audience, unless they are incorporated into the design of the project itself. Even with simple concepts, supplemental information should be made available to the audience if comprehension and retention of the message is to be assured.

AIDS Education in Rwanda

The AIDS awareness campaign in Rwanda provided an excellent example of the use of supplemental material in development communication. A study performed following the series of educational programming demonstrated that the audience still lacked much knowledge on many key components in the transmission and treatment of many diseases, specifically AIDS. The developers felt that additional forms of information were necessary to educate the audience effectively. Therefore, they created booklets in a variety of languages to distribute to various leaders in several communities. They circulated pamphlets to medical personnel and leaflets to members of high risk groups. The use of printed materials and community workers became a necessary component to effective communication in AIDS awareness in Rwanda (Carael et al, 1987).

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Supplemental information is necessary for effective communication. Whether the information is complex or simple, other forms of information must be available to the audience to clarify any problems the target audience might encounter.

FORMATS UTILIZED

The formats utilized by producers of information must be conducive to the audience. There are a wide variety of formats that can be used, from lectures to radio plays (Bogue, 1979d). In developing countries, the use of indigenous or folk media may be more effective in capturing the attention of the audience. A number of examples can be used to verify the type and effectiveness of using distinct formats. Liberia's health programme demonstrates the effectiveness of using a variety of different formats in a development programme. Kenya's comedic serial depicting health issues and Nepal's agricultural programme demonstrate the use of serials in development communication. Sri Lanka and Brazil both use a translation of folk media for development purposes.

Liberia's Health Programme: The Variety Format

Many development programmes do not use one distinct format. The health campaign in Liberia used a variety of formats to educate its audience. The thirty-minute programme was divided into spot announcements, interviews with medical officers, a continuing "conversation" between two mothers about many health issues, especially the benefits of oral rehydration therapy (Kweekeh, 1987).

The Drama Format

A study undertaken in the Philippines stated that the audience preferred drama and music over development or public service programming (McAnany, 1973). Kenya and Nepal both use the drama format to entertain their audience while educating them. Kenya's *Zaa Na Uwatunze (Giving Birth and Caring For Your Children)* educated its audience about health and welfare in Kenya. The programme educated its audience through the adventures of an eccentric old man with many children. The old man would reflect the traditional means of providing and caring for his children. His wife would try to persuade him to adopt the more modern and successful practices (Hostetler, 1976). Through the use of comedy and exaggeration, development issues were addressed.

Nepal's agricultural programme *The Old Lady and the Farmers* also used a serial format to address development issues. The continuing series revolved around the visits between an elderly village lady and the Junior Technical Advisor, an associate of the Ministry of Agriculture. Each visit would address a new agricultural concern. This programme became so popular with the rural population that the "old lady" was invited to visit a number of villages so that she could address their agricultural concerns to the extension worker (Dikshit, 1979).

Folk Media

The use of folk media is also an effective format in many developing states. This utilization of distinct cultural traditions is becoming more popular in development communication (Valbuena, 1991). In the Northeast region of Brazil, the rural population use *cordel* as a form of expression or exchange of ideas. The *cordel* itself is a poem written by or on behalf of the poor rural population. It is then sold on the street. The poems are read to family and friends in the confines of home. The poems discuss concerns and problems of the poor, and have become a mode of self expression for those who might not have the ability to voice their concerns. In Brazil, the *cordel* is used as a form of development communication to examine issues relevant to the poorer and rural populations (Epskamp and Boeren, 1992).

In Sri Lanka, a traditional devil exorcism was a mechanism of discussing various social issues. *Thovil* is the conversation between the exorcist and a drummer, who acts on behalf of popular opinion. Radio programmes in Sri Lanka have adapted this format to address various social problems, especially malaria and diarrhoea. The diseases or social problems become the demon that needs exorcising in modern society (Valbuena, 1991).

There are a variety of formats to use in development communication. Yet producers of information must use formats which are conducive to their audience (Zimbardo and Leippe, 1991). One must always obtain and sustain the audience's

attention for effective communication. Use of dramas, serials, interviews, the news format and specific traditional or folk media are all effective means of pursuing this goal.

NEEDS GRATIFICATION

Radio is perceived differently in developing countries than in the Western World. In Canada, radio is used as a secondary medium (Crisell, 1986; Kinder, 1973). However, many developing countries use radio as their primary, and sometimes only, source of information (Bogue, 1979d; Jenkins, 1981; Kweekeh, 1987). Radio, then, is an effective means of development communication in developing countries because it is the medium people depend on for all types of information.

Relevant information is necessary to fulfil certain needs in the audience. For example, McAnany (1973) found that the rural population outside of Mexico city found little information in radio programming relevant to their own needs. Much of the information broadcast was reflective of situations in Mexico City. Crop prices, minimum wage and medical programmes varied dramatically between urban and rural centres. The information was not relevant to the rural audience so their needs were not met.

Burke (1989) explains that information must be relevant and timely for particular audiences. This would be one advantage of using localized radio instead

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of national broadcasting. Local radio can give relevant information in terms of crop prices, visitations from medical personnel and details about local events.

The WUP Project

The WUP project further exemplifies the problems of addressing audience needs in development projects. The first hand pump used to obtain clean water in the Upper Regions in Ghana originated from Canada. Therefore, the technology of the pump relied on Canadian conditions. The geographic conditions in Ghana varied dramatically from those in Canada. Although the pumps worked initially, each eventually broke down. Other pumps were then designed according to the geographic conditions of Ghana (CIDA, 1990). Mechanisms within the development project itself were not relevant to the audience and its surroundings.

Literacy Training in Honduras

The purpose of many development projects has also been criticised for not fulfilling the needs and concerns of the audience. Literacy training in Honduras was a primary development issue because of the large number of illiterate peasants in rural communities. Although much of the rural population enroled in radio schools to overcome this problem, many believed that literacy was not a priority. Literacy was not relevant to many peasants since most jobs did not require reading or writing. They did not have access to print media. The rural population did not even have access to postal services. Therefore letter writing and the telegram

service were not available to the rural population. Surveys following the project

found that many peasants did not learn how to read and write (White, 1977).

Radio in developing countries is used as a primary source to obtain

information in developing countries (Jenkins, 1981; Kweekeh, 1987). But, the

information must be relevant to the needs of the audience (McAnany, 1973). Tools

required in the development project itself must be relevant to the distinct

geographical and technological conditions of the state (CIDA, 1990).

TECHNICAL REQUIREMENTS OF RADIO

Exposure to the message is a fundamental component of persuasion

(Zimbardo and Lieppe, 1990). Unfortunately, there are a number of factors which

prohibit exposure. There are also elements which restrict access to information, or

access to the mechanisms of change. All of these factors inhibit the technical

requirements needed for development communication.

RECEPTION CAPABILITIES

The audience must be able to receive the message to change their

behaviour. Having access to radio receivers and a power supply are necessary

components. There are a number of cases in development communication where

access to receivers and batteries has been limited. The Indian Rural Farm Forums

and radio education in Africa demonstrate the difficulties of poor or nonexistent

reception capabilities within developing countries. In open broadcasting, producers

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of information must be confident of the reception capabilities of the audience. Radio receivers must be provided if producers do not believe that the audience has access to a radio.

Rural Farm Forums in India

When India started its rural farm forums[6], developers had to provide radios to all forums. Few radios were available to the rural population. When the initial experiment ended, one third of the radios were taken away from the villages because of financial constraints (Bhatt and Krishnamoorthy, 1965).

Radio Education in Africa

Although this development project took place over twenty five years ago, the problem of reception capabilities still poses a great problem. A recent symposium on radio education in Africa addressed this issue. There was still a shortage of radio sets and batteries. Both of these components were too expensive for the average rural inhabitant. In addition, the cost of servicing broken radio sets was high, and parts needed for repair were not always available (Githiora, 1990).

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[6] The Rural Farm Forums in India were to provide an educational forum on agricultural problems as well as other village concerns. Based on the Canadian rural farm radio forums (listen, discuss, act), a group of villagers would join together to listen to a radio broadcast. They would then discuss the issues and problems raised during the radio programme, and relate them to their own village concerns. They would then propose and enact solutions to these problems. This was the purpose of many rural radio forums (Bhatt and Krishnamoorthy, 1965).

In Nigeria, the rural population has little access to mass media. The poor road conditions and public transit system hampers the availability of the print medium. Since 70% of the population of Nigeria live in rural areas, media is needed for effective development communication (Okwudishu, 1988). Radio, however, is barely available to the majority of this state. Okwudishu (1988, p.6) states "in most rural areas of Nigeria, there is no electricity to power radios, and in many cases people cannot afford the price of dry cell batteries." Without the ability to purchase or supply power to operate the radio, then the message will not be exposed to the audience.

Reception of the message is an essential component in development communication. In many developing countries, the financial status of the audience plays an important role in this relationship. In many countries in Africa, radio receivers and batteries are too expensive. Electrical power supply is unavailable (Githiora, 1990). Without these vital factors, the audience will not be exposed to the message.

TRANSMISSION CAPABILITIES

The transmission of development communication is important for proper exposure of the message. If there are limited transmitters for effective communication, then exposure to the message will be limited or nonexistent. The radio education symposium in Africa addressed this issue. In Africa, there were several reception and transmission problems. There was a shortage of proper

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broadcasting equipment and properly trained personnel which had a detrimental effect on the transmission of the message (Githiora, 1990).

Swaziland: Radio Education

An immunization programme in Swaziland sought to educate children about health care using interactive radio. Many of the problems associated with the radio programme can be attributed to the problems discussed at the symposium for radio education in Africa. Many schools operated in English, yet had difficulties acquiring the English service of the Swaziland Broadcasting Service. Many regions in Swaziland were not able to properly receive the English service of the national radio system (Magongo and Freimuth, 1987).

Radio Bahá'í

There are means of improving the transmission capabilities of a developing state. Radio Bahá'í in Liberia used solar power and wind energy to power their station. Power to operate a station in this region was often unreliable. Hydroelectric power was the only means of operating a station and towards the end of the dry season, this power was not constant (Stephens, 1987). Having a constant power source increased the transmission capabilities of the station.

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ECONOMIC FEASIBILITY OF THE STATE

There are other factors which can indirectly affect the exposure of the message. If one does not account for the economic system of a particular state in development communication, then the target audience may not be exposed to the message. The upkeep of the media system to be used in the development project is one deterrent to exposure of the message. The Indian Rural Radio Forums and the EXERN/SACI project in Brazil adequately demonstrate how the lack of government or private funding can inhibit exposure of the message.

Rural Radio Forums in India

There were 150 different groups during the initial stages of the rural farm forums. The personnel for the project consisted of one chief organizer, five district managers and 40 extension workers. As the project progressed, all staff, excluding the chief organizer, were dismissed because of financial constraints. 50 radio sets, that were initially provided to villages without access to receivers, were also withdrawn because of financial constraints. The project could not be maintained because the government did not have the finances to support the project (Bhatt and Kvishnamoorthy, 1965).

SACI/EXERN Project in Brazil

The educational project in Brazil provided printed materials, radio sets, batteries and maintenance to 273 radio and 218 television schools in 1973. McAnany (1980, p. 23) states "running a programme in about 500 schools, the

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majority of them without electricity, with poor road conditions, without an intra-state telephone system - all this is quite a challenge, apart from specific teaching difficulties". To maintain this system was economically demanding. McAnany continued by claiming that a justification for the success of such a demanding project was the crowded conditions of the state. With a sparse population, this project would not have been economically feasible for the government or the external agents (McAnany et al, 1980).

Tools for Change

Even if the audience is able to understand the message, if there are no accessible tools for change, development communication will not be successful. The economic system of the state must allow for the change espoused through the development message to occur. McAnany (1973, p.6) states:

> "...Radio-Star's effects to improve health practices with a fifteen minute weekly program, however popular, will not make much of a difference in people's lives unless people have the possibility of some minimal rural health service. Or again, the effort in New Guinea to persuade people not to migrate to the cities through a radio soap opera (Halesworth, 1971) must convince people that there is something worth staying for in the countryside. Unless government programs help develop rural areas, audiences will remain obstinate to persuasion."

Some development projects do not account for the economic system of the state. If the state cannot afford or maintain the change intended by the development project, then development communication will be ineffective. Other factors, such as language and the social system, can also impede the effectiveness of development communication.

SOCIAL FEASIBILITY OF THE STATE

The social system must allow the message to be exposed to the target audience. There are two primary deterrents to exposure: targeting the correct audience, and language barriers.

WUP: Ensuring the Target Audience Receives the Message

The WUP project in Ghana did not initially consider the social system of the Upper Regions of Ghana. Women were the primary users of water, the primary caretakers of the family and comprised 80% of the agricultural workforce. Yet originally no women were recruited as hand pump caretakers. The job required technical skills. Therefore, only men having certain blacksmith, repair or other related skill were selected. When the initial project was not successful, organizers decided to include village women as field and education workers. They also played an essential role during the radio forums (CIDA, 1990). As knowledge about the social system was incorporated into the development project, the developers were able to communicate with the target audience more effectively.

Language Barriers

Language is also an essential component in development communication. If the radio programme does not broadcast in the language understood by the target audience, then the audience will not be exposed to the message. Although there were other languages spoken in Nepal, only Nepalese was used during their agricultural programme, the *Old Lady and the Farmer*. In doing so, they

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eliminated a segment of their audience outside of the Kathmandu Valley (Dikshit, 1979).

Language was an important component of a child health care campaign in Zaire. In an interview format, a doctor discussed various child care issues during a weekly fifteen minute broadcast. He spoke in the five primary languages of his audience (McAnany, 1973). By increasing the number of languages used in the broadcast, the producers of the programme enlarged their audience.

By studying evaluations of various development projects, theorists have learned about how to achieve effective communication. Many characteristics in the radio environment interact with each other. These characteristics can come from different theoretical concepts: the grassroots paradigm of development communication, radio as a communication device, and the technical requirements of radio. If producers of development communication examine their target audience as a primary source of information, then it is more likely that the audience will play a crucial role in the development process.

Chapter Five

Methods of Analysis

The purpose of this paper is to explore whether theory is being practised by those specializing in the development communication field. If a theory or components of a theory are not practically applied, then justification for this circumstance must be proposed.

From research in grassroots participation, radio as a communication device and the technical requirements of radio, certain elements, according to a variety of theorists, have been deemed important when using radio in development projects. Theorists and practitioners have also gained knowledge from the evaluation of previous development projects which reflect these elements. These measures are as follows:

From the discussion of **GRASSROOTS PARTICIPATION**, the following four issues will be used to analyze radio projects:

Audience Participation: Does the audience participate in the decision making, production or planning level of the project? (Berrigan, 1981; Dissanayake, 1981; Hein, 1988; Mody, 1991)

Audience Feedback: Are channels available to provide for audience feedback to the messages in the project? Are there planned visits to the field sites by project personnel or extension workers? (Bordenave, 1977; Eschenbach, 1977; Hein, 1988; Hornik, 1988; Magalang, 1976; Mody, 1991; Rodrigo, 1989; Stover, 1984; Wang and Dissanayake, 1982)

Project Initiation: Who initiated the project? Was it the national government, an external agency or the target audience? (Bordenave, 1977; Carmen, 1989; Dissanayake, 1981; Hornik, 1988; Mody, 1991; Monu, 1989; Rodrigo, 1989; Stevenson, 1988; Stover, 1984)

Media Ownership/Control: What limitations are placed on radio? Who owns or regulates the media system within the state? (Kasoma, 1990; Stover, 1984)

From the discussion of **RADIO AS A COMMUNICATION DEVICE**, the following four issues will be used to analyze radio projects:

Type of Information: What type of information is being transmitted: is it detailed or does it require long term retention of information? (Bates, 1984; Bogue, 1979a; Brown, 1986; Crisell, 1986; Harris, 1989; Johnston, 1987)

Supplemental Information: Is there supplemental information available to the audience either in printed form or through extension/support workers? (Bates, 1984; Bogue, 1979; Chakrabariti, 1967; Kinder, 1973; Rajasundaram, 1981; Romiszowski, 1974)

Formats Utilized: What format is utilized by the producer of the information? Is it conducive to radio and to the audience? (Bates, 1984; Bogue, 1979a; Bogue, 1979d; Jenkins, 1981; Reynolds and Anderson, 1992)

Needs Gratification: Is the information relevant to the audience? Can it be fulfilled by the medium of radio? (Hornik, 1988; Lazarsfeld and Stanton, 1949; McAnany, 1979; Rajasundaram, 1981)

From the discussion of **TECHNICAL REQUIREMENTS**, the following three issues will be used to analyze radio projects:

Reception Capabilities: Is it economically feasible for the audience to own a radio set? Is a radio set available for group or community use? Can one economically maintain the radio set, either through electricity or dry cell batteries? (Githiora, 1990; Herrmann, 1979; Laflin, 1989; Okwudishu, 1988)

Transmission Capabilities: Is the number of transmitters available adequate to effectively reach the target audience? Does the type of transmission (AM/FM, shortwave) affect how the message will be received? (Githiora, 1990; De Keiffer, 1965; Laflin, 1989)

Economic Feasibility for the State: Is it economically feasible for the state to initiate and maintain the media system and the purpose of the development project for a sustained period of time? (Bordenave, 1977; Hornik, 1988)

Social Feasibility: Does the social system of the target population allow for effective communication? (Bogue, 1979a; Carmen, 1989; Friend, 1988; Rajasundaram, 1981)

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IDRC as the Source of Projects

An organization specializing in international development was needed to test whether these measures were being practically applied. The International Development Research Centre (IDRC) was selected to fulfil this objective. This organization was chosen for two primary reasons. First, both project information and personnel were accessible. Second, IDRC is a development organization specializing in poor or less developed countries. IDRC funds development projects in Africa, Asia and Latin America in a variety of areas. Urban, agricultural, and family and childcare development comprise traditional development practices. IDRC also specializes in the environment, AIDS research, urban violence, women's issues and other modern global concerns (IDRC, 1990a).

IDRC has been involved in development communication since 1971. One of the primary strategies of this organization is empowerment through knowledge. IDRC (1991a, p.12) believes that:

> "the term empowerment captures the essence of what 'development' should be. Given that it cannot and should not be imposed upon a society from outside, development should mean above all giving people the power, defined in terms of adequate knowledge and capacity, to decide what is best for them, and to act accordingly in fulfilling their own destinies."

This organization has created a body of knowledge and practices for dealing with the rural and poorer populations of the world.

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IDRC is an excellent candidate to test whether the theoretical concepts of the radio environment are being practised. IDRC should be knowledgeable about the most effective and efficient means of communicating to the rural, poorer populations of developing countries, while still achieving their objective of empowerment through knowledge.

A list of potential projects (Appendix 1) which would be used to test the measures of effective development communication gathered from this organization had to meet two qualifications. First, a project must use radio as a primary source of disseminating information. Second, the rural population within a state or region must be a direct or indirect target audience of the project. This audience would have less access to media and information than their urban counterparts, and a great majority of the population of developing countries still live in rural settings.

From this list, projects were selected from various regions to assure geographic diversity. Only those projects using open broadcasting were chosen. Projects with an English evaluation report were selected. Finally, projects evaluating radio programmes were eliminated. The five projects which met these conditions are described below.

Project Title	Science Popularization - Phase 1
Project Number	840297
Start Date	27 05 1985
Completion Date (Est)	27 07 1987
Recipient Organization	Royal Nepal Academy of Science and Technology (RONAST)

Project Abstract:

The mass media can play an important role in increasing public awareness of how science and technology can help national development efforts. In Nepal, on-going efforts to promote the adoption of innovations have been hampered by traditional beliefs and conservative attitudes. The purpose of this project is to implement a pilot science popularization program that will be conducted in collaboration with the press and radio. The pilot program will help develop, within the Nepali mass media, a capacity to communicate the results of scientific research in an understandable way through local language radio broadcasts and science features written for local newspapers.

Project Title	Child Health Radio
Project Number	860149
Start Date	17 03 1987
Completion Date (Est)	11 06 1989
Recipient Organization	Yayasan Kusuma Buana (YKB)

Project Abstract:

Child health is a major concern in Indonesia where the infant mortality rate of 87 per 1000 is one of the highest in Southeast Asia. If parents were well informed and understood many of the simple preventative health and low cost intervention methods available to them, many childhood deaths and health problems could be avoided. This project will develop 26 radio mini-dramas on six child-health issues targeted at the middle and lower-middle income classes. The scripting of the programs will be done in consultation with subject-matter specialists. Scripts and prototype programs will then be pretested prior to broadcast by one of Jakarta's popular radio stations. Audience surveys will also be carried out on the broadcasts. Feedback gathered after the airing of the programs in Jakarta will be used in refining the programs prior to their distribution to other regional radio stations.

Project Title	Mobilization of Private Sector Resources for Promotion of Immunization
Project Number	890101
Start Date	22 12 1989
Completion Date (Est)	22 12 1991
Recipient Organization	Yayasan Kusuma Buana (YKB)

Project Abstract:

An estimated 160,000 children in Indonesia die each year from six immunizable diseases: tuberculosis, diphtheria, whooping cough, tetanus, measles, and polio. Thousands of others suffer from related disabilities, which could be prevented through complete immunization. Lack of awareness about the benefits remains the most common reason for low immunization coverage or incomplete immunization. The community's knowledge about immunization could be increased if more information was made available and presented in a fashion that the community could understand and recognize as being significant. This project will identify the barriers to the acceptance of vaccination among the low socioeconomic population; develop and evaluate appropriate messages and media to facilitate the acceptance of vaccination; and stimulate demand for immunization services. The project will also identify and mobilize resources from private NGOs and the commercial sector to reproduce and disseminate the prototype messages and media.

Project Title	Mass Media and Oral Health
Project Number	890248
Start Date	24 09 1990
Completion Date (Est)	24 09 1991
Recipient Organization	Mazingira Institute

Project Abstract:

In a previous project "Chewsticks Research (Kenya)" (3-P-84-0338) the use of chewsticks for oral hygiene was found to be widespread in the country, with over 250 species of plants being used for this purpose. Clinical studies demonstrated that chewsticks were as effective in maintaining good oral hygiene as conventional manufactured toothbrushes, and similar effects were obtained by chewsticks used with or without toothpastes. This project will disseminate the findings of that study to rural and periurban populations. A public awareness campaign will include radio programs in both English and the vernacular, and a newspaper supplement in English to be inserted in two national daily newspapers. Before dissemination, the understanding of the message will be pretested through focus groups discussions.

Project Title	Plantain
Project Number	900079
Start Date	14 03 1991
Completion Date (Est)	14 03 1994
Recipient Organization	Council for Scientific and Industrial Research (CSIR)

Project Abstract:

The production of plantain, an important staple in Ghana, has been declining for more than a decade while the 14 million population is increasing at a rate of 3% per annum. This downward trend in production is attributed to several factors including pests, diseases, poor management practices and above all, lack of improved production technology for plantain. The Crops Research Institute, Kumasi and the University of Ghana Agricultural Research Station, Kade, have jointly requested IDRC support to enable the two institutes to execute the present project aimed at finding solutions to production constraints. It is anticipated that improved technological packages for increasing production will be developed a the end of the project for transfer to small-scale farmers. Throughout the project, radio broadcasted programs targeting concerned communities will be aired to increase farmer's awareness about the 'mprovement of plantain production.

Chapter Six

Data Analysis of Development Projects

An analysis of the selected projects will demonstrate which theoretical characteristics are practically applied in development communication. Each project was examined for issues relating to the eleven components listed in the methodology section. Available information was confined to the International Development Research Centre's files. Other facts which might support or illuminate the conclusions to be made in this chapter were not accessible. IDRC primarily ke ips information on the financial status of a project, while the complete analysis of the project is on file with the recipient organizations. Also, three of the projects had not been completed at the time the information for this chapter was gathered. Interpretation had to be made on the basis of the project summaries, and not the project evaluation reports. Changes that were made within the course of these projects could not be incorporated into this analysis as this information was not available.

Science Popularization - Phase I (Nepal)
27-05-1985 to 27-07-1987

The purpose of this project is to develop programmes dealing with the dissemination of recent scientific and technological information using radio in local languages and newspapers in Nepal.

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GRASSROOTS PARTICIPATION *(Science Popularization)*

AUDIENCE PARTICIPATION *(Science Popularization)*

The audience was not associated with the production, planning or decision making level of the project, probably because 94% of the population live in rural regions or villages, while only 6% live in 33 cities (IDRC, 1989c).

Local journalists, specializing in science and technology, wrote science articles in the newspapers. Radio personnel went to rural locations for interviews (IDRC, 1984). Except for the input of the trained and educated personnel of the government radio station, the audience did not participate in the production of the message. Without the field interviews, the audience would not have participated at all.

AUDIENCE FEEDBACK *(Science Popularization)*

It is estimated that approximately 75% of the Nepalese population is illiterate (Banks, 1990). Despite the high illiteracy rate, one of the primary means of obtaining feedback from the audience was from written responses to the quiz section of the science features programme. The producers of the programme felt that the responses to the quiz (where nominal prizes were rewarded for correct responses) would adequately reflect the characteristics of the population. The government believed it could deduce the geographical representation of the audience from the responses (IDRC, 1984). The high illiteracy rate made it difficult to represent the concerns of the audience. Listeners who could not write

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would have no means of voicing their concerns about the radio programme. The poor condition of telecommunications and postal services (Banks, 1990) would also hamper the eff s of the rural population to participate in this mechanism of feedback.

The Royal Nepal Academy of Science and Technology (RONAST) sent some teams to rural locations in an attempt to obtain feedback from the illiterate population. But, feedback from these groups was difficult and expensive to obtain. Some rural communities are not accessible by motorized vehicles, and take several hours to reach by foot (Pokhrel, 1989).

The relevant mechanisms of feedback were important issues. Further projects and issues for science popularization in Nepal were based on the comments and concerns raised by the audience. Issues raised by literate and urban dwellers were examined by producers. Because of the lack of rural involvement in the programme, RONAST in the second phase of the project formulated other means of achieving feedback from this segment of the population (IDRC, 1989c).

PROJECT INITIATION *(Science Popularization)*

RONAST is a government organization specializing in promoting scientific and technological information to Nepal. Since Nepal is one of the least developed countries in the world (Banks, 1990), the primary objective of the government is to advance the economic and social status of Nepal. RONAST was established to achieve this goal through the advancement of scientific and technological knowledge in the country (IDRC, 1984).

MEDIA OWNERSHIP/CONTROL *(Science Popularization)*

Nepal only has a government owned and controlled broadcasting system. Historically, the media in Nepal have had many problems with government censorship of information. If information does not conform to government objectives, then legal action can be taken against the media organization. For example, in 1981, <u>Prati Dhwani</u>, a popular weekly, was banned from printing material criticizing a Soviet mission. In 1985, approximately 100 papers were shut down for printing material contradicting government objectives (Banks, 1990). Because of this history, information broadcast on Radio Nepal might reflect government objectives then audience needs.

RADIO AS A COMMUNICATION DEVICE *(Science Popularization)*

TYPE OF INFORMATION *(Science Popularization)*

The type of information broadcast on the radio was deduced from audience comments. From feedback on both radio broadcasts and the science feature articles, the audience felt that the information was too technical; many could not understand it. Most respondents felt that the programme was for those with a scientific or technical background (IDRC, 1987).

SUPPLEMENTAL INFORMATION *(Science Popularization)*

Radio broadcasts were transmitted concurrently with science features articles in newspapers. However, the articles were only accessible to the literate population of Nepal, and were generally confined to the Kathmandu Valley (IDRC, 1987). It would be impossible for the rural population to have consistent access to many newspapers because of the poor road conditions (Banks, 1990).

Other sources of supplemental information were field/extension workers, or members of the community who would have knowledge to verify or clarify broadcast information. During this project, schools or organizations in the scientific field were not informed of the project, though inquiries from the audience were made at these institutions. After field visits to certain locations, RONAST created brochures on the project (Pokhrel, 1986b).

FORMATS UTILIZED *(Science Popularization)*

The science programme used a magazine format with short interesting segments. There were on-site interviews, quizzes and weekly feature, such as one on scientific inventions. Six different segments were produced through Radio Nepal. Each ran approximately fifteen minutes (IDRC, 1987).

NEEDS GRATIFICATION *(Science Popularization)*

The purpose of the project was to disseminate scientific and technological information to the population of Nepal. The majority of the population is involved in agriculture. Approximately 92% of the population is in this field, which accounts for 56.1% of the Gross Domestic Product (Europa, 1992). Yet the information broadcast through the science programmes focused on technological advancements. This information was believed to be more relevant to people with a science background (IDRC, 1987).

The second phase examined the needs of the audience more closely before producing the science programmes. Through research on rural areas and the needs of the audience, issues about the rural population were incorporated into the science programme. Instead of broadcasting issues about scientific phenomenon, concerns of rural communities were considered. Therefore, the science programme focused on family planning, how to prevent diseases, how to obtain clean water and better agricultural methods. These issues were more relevant to the needs of the Nepal audience (IDRC, 1989c).

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TECHNICAL REQUIREMENTS *(Science Popularization)*

RECEPTION CAPABILITIES *(Science Popularization)*

The majority of the population of Nepal does not have access to radio receivers which further hampers the reception capabilities of the audience. Only 33 out of 1000 inhabitants had a radio set. Even if these radio sets were accessible to a family of five, almost two thirds of the population did not have access to any radio receivers at all (RONAST, 1988). This dramatically limited the effectiveness of any message. Therefore, feedback obtained from listeners could not adequately reflect the audience. The reception capabilities of the audience were very limited.

TRANSMISSION CAPABILITIES *(Science Popularization)*

One of the evaluation components in this project was to record the science programme from different remote areas to verify the clarity of the message. The evaluation of the project found weak signals in Nepal's mountain region (IDRC, 1987). Without the appropriate number of transmitters in the correct location, a clear signal could not be received.

ECONOMIC FEASIBILITY *(Science Popularization)*

Nepal is one of the least developed countries in the world (Banks, 1990). The purpose of the project was to increase the scientific and technological knowledge of the audience. Yet, there were no means to apply the knowledge to their daily life. Although the purpose of increasing the scientific and technological

awareness of the population was commendable, without the means to apply the scientific information, the information was useless.

SOCIAL FEASIBILITY *(Science Popularization)*

Radio Nepal broadcasts in Nepali and English. Nepali is the official language of the state. Yet there are a variety of other languages spoken, especially by the rural population. 11.1% of the population spoke Maithir, and 7.6% spoke Bhojpuri. If one did not speak either Nepali or English, the messages could not be understood (IDRC, 1987).

The **Science Popularization** project did not utilize the audience according to the goals of the Grassroots paradigm. It did not use the relevant components of radio as a communication device. The project did not examine the important technical requirements to verify if the message was exposed. Yet, the second phase of the project attempted to incorporate all three of the fields more effectively.

Child Health Radio (Indonesia)

17-03-1987 to 11-06-1989

This project seeks to develop radio programmes on health related issues for children. These programmes were designed for the middle to low income of the rural population in Indonesia.

GRASSROOTS PARTICIPATION *(Child Health Radio)*

AUDIENCE PARTICIPATION *(Child Health Radio)*

The audience did not participate in the production of the message. However, through focus group discussions, the audience decided the appropriateness of information. Before the development of the final version of the radio production on child health issues, focus groups were compiled to test the effectiveness of the message. Housewives from Jakarta comprised the majority of the six groups, but one group consisted of working mothers. Each person involved in the study group had a child under five years of age. The producers felt this was an adequate reflection of the target population (IDRC, 1986).

The groups were used to test the effectiveness of the message. They were questioned on the entertainment potential of the programme to verify whether it would maintain their attention. They were also questioned on comprehensibility of the message (IDRC, 1986).

The messages were modified according to the responses given in the focus group discussions. Even the time of the broadcast was modified based on responses from the focus groups. At first, the programme was to be broadcast once to twice a week. The airing schedule was altered to a daily broadcast after many women claimed that they would not remember when the broadcast was on if they did not hear it daily (Yayasan Kusuma Buana, 1987).

AUDIENCE FEEDBACK *(Child Health Radio)*

The focus group discussion allowed the audience to participate in the decision-making level of the radio programme. and to voice its concerns about the programme. The focus group discussions were an excellent means of achieving feedback before the actual broadcasting of the message because the audience could modify the message according to their own needs (Yayasan Kusuma Buana, 1987).

After the message was broadcast, feedback was monitored by telephone calls and through letters written to the station. Both of these mechanisms could eliminate some segments of the audience. Those without personal access to a telephone and the illiterate population would both represent groups who would be restricted by these means of feedback. When IDRC approached the recipient institution with this concern, they were assured that these methods of feedback were appropriate. In the past, the target population sent in postcards and made phone calls from public telephone booths when concerns arose (Chin, 1986a).

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PROJECT INITIATION *(Child Health Radio)*

The recipient institution for this project was Yayasan Kusuma Buana (YKB), a private non-profit organization which receives funding from the Indonesian government, the National Family Planning Coordinating Board and international development agencies. YKB had prior experiences with the lower income and illiterate population of Indonesia, and had specialized in many areas associated with health and family planning. The goal of this organization is to convince the private sector of its function in the health and family planning practices of the community (IDRC, 1986).

MEDIA OWNERSHIP/CONTROL *(Child Health Radio)*

Indonesia has three broadcasting systems: private, public and government-owned and operated. YKB chose to work with a private radio station initially, Radio Kayumanis. This station was the most popular radio station among the lower income population of Jakarta (Yayasan Kusuma Buana, 1987).

To effectively create a programme which is entertaining and sustainable over time, the private radio station needed corporations to fund the programme. The only means to achieve this goal was through the sale of advertising time to multinational corporations. Therefore, those corporations which were involved in health and family planning issues were selected as potential advertisers for the radio programme. To assure that the production and distribution of the radio programme would continue after the funding from IDRC had finished was the

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justification for accepting revenue from these organizations (Chin, 1986b; IDRC, 1986).

RADIO AS A COMMUNICATION DEVICE *(Child Health Radio)*
TYPE OF INFORMATION *(Child Health Radio)*

The six focus group discussions indicated that the type of information presented was probably appropriate.

SUPPLEMENTAL INFORMATION *(Child Health Radio)*

In the initial proposal, the audience had no other means of obtaining the information. IDRC suggested that health care workers be included in the focus group discussions to verify information on the programme (MacDonald, 1986a). Members of the private sector, specifically within the health field, should be made aware of the content of the messages to effectively respond to audience's concerns.

IDRC also felt that other outlets should be available to the audience. From a recent poll of the Jakarta population, approximately 40% did not 'hear' the radio. IDRC questioned the definition of 'hear'. If it meant that the audience did not listen to news and information services, then the radio would still be accessible to these members. Yet, if the term meant that the audience did not have access to radio, then other means of obtaining the information should have been incorporated into the design of the project to reach these people (Chin, 1986a).

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FORMATS UTILIZED *(Child Health Radio)*

YKB focused their efforts on determining which format would be most conducive to their audience. The focus group discussions and other polls suggested that women prefer to listen to drama and radio serials. If the radio serial had good actors and actresses, and a good story line, then the target audience would consider it of high quality (Yayasan Kusuma Buana, 1987).

The recipient institution believed the most important component of development communication was to entertain the audience. They believed that the audience would not listen to the poorly done educational material being broadcast. By packaging the development message into an entertainment format, they could acquire and maintain the audience's attention. Radio specialists in Indonesia supported this belief that the radio serial would be an excellent means of transmitting development messages (IDRC, 1986).

NEEDS GRATIFICATION *(Child Health Radio)*

Children's health was a major issue in Indonesia. Of the total population, 14% were children under five years of age. Indonesia has a very high infant mortality rate: 187 per 1000 births (IDRC, 1989a).

There had been a variety of studies into child health care and family planning in determining what was important to the audience before this project because the focus groups supported the purpose of this project. The women felt

that they needed to know more information on child care and family planning. Other issues, which the project did not address, were brought forth during the focus group discussions. Radio dramas which focused on conception, educating children and spousal relationships were important to many women in these groups (Yayasan Kusuma Buana, 1987). Because the radio drama had planned to continue after the termination of IDRC funding, these issues can be addressed further in the programme.

TECHNICAL REQUIREMENTS *(Child Health Radio)*
RECEPTION CAPABILITIES *(Child Health Radio)*

YKB claimed that two thirds of the population listened to the radio occasionally (IDRC, 1989a). Yet another study found that approximately 40% did not 'hear' the radio. If this was the case, then the lower income group, whom the project was targeted towards, would be the group with least access to radio sets (Chin, 1986a).

However, during the focus group discussions it was found that, even if audience members did not have access to a radio, they could still hear certain programmes. A popular morning drama serial was heard by most participating in the focus groups because women who had radios would play the radio loudly to accommodate those who did not possess receivers (Yayasan Kusuma Buana, 1987).

TRANSMISSION CAPABILITIES *(Child Health Radio)*

There are approximately 36 private radio stations in the Jakarta area; therefore, frequencies must be shared by certain radio stations. Radio Kayumanis shared its frequency with another stations, located south of Jakarta. Within Jakarta, there was no interference with this other station. The signal was strong and clear as witnessed by the apparent popularity of the station (Chin, 1986a).

After the completion of the initial broadcast of the radio drama, YKB distributed fourteen copies of the programme to several popular radio stations in Indonesia. Seventy sets of the programme were distributed to other radio stations for a small fee (Raymond, 1989). The population of Indonesia, over time, had the opportunity to hear the programme through several different stations.

ECONOMIC FEASIBILITY *(Child Health Radio)*

The radio station that YKB worked with was privately owned. To supplement the cost of the programme, and to continue the radio drama after the termination of IDRC funds, private multinational corporations were asked to supplement the programme through advertising revenue. In the initial stages of the project, several multinational corporations were to be approached. One of these corporations was Nestle (Food Services Indonesia). This company was not approved by IDRC. After the project had started, Nestle was dropped from the approved list of multinational corporations because of its negative history in developing countries (Chin, 1986b). Furthermore, YKB had a good and credible

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reputation in Indonesia, both with health services and with the public. They would not jeopardize their reputation for advertising revenue (Chin, 1986b).

There was no available information about the economic feasibility of providing for certain services or medicines in Indonesia. For example, diarrhoea and dehydration was an important issue in this state. Although oral rehydration therapy was a treatment for this disease, there was no mention of funding for the audience to receive this treatment.

SOCIAL FEASIBILITY *(Child Health Radio)*

Th. target audience, women of low economic status, was effectively reached because Radio Kayumanis was the most popular station. This programme would be broadcast in the language understood by this audience (Yayasan Kusuma Buana, 1987). No social barriers which would hinder the audience's ability to receive the message were detected.

Child Health Radio modified the elements of the Grassroots theory without compromising its goals. The audience participated in the project through prebroadcast testing. The recipient organization also practised the components of radio as a communication device, derived from feedback from the audience. They attempted to expose the message to the audience by considering the technical requirements of radio.

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<u>Mobilization of Private Sector Resources for Promotion of Immunization</u>

<u>(Indonesia)</u>

22-12-89 to 22-12-91

This project sought to design mass media messages to the rural communities of Indonesia regarding vaccination and immunization.

GRASSROOTS PARTICIPATION *(Promotion of Immunization)*

AUDIENCE PARTICIPATION *(Promotion of Immunization)*

The audience did not participate in production of the message. As in Child Health Care (Indonesia), the audience participated in the decision-making level of the radio production. Parents and relatives with children under one, as well as health care workers, were the participants in focus group discussions before the broadcast of the final version of the development message (IDRC, 1989b).

In these groups, the participants were asked to relay information about knowledge and concerns about immunization. The participants were the key sources of information for the producers of this development message. Through these participants, producers could deduce what information needed to be addressed (Yayasan Kusuma Buana, 1989).

AUDIENCE FEEDBACK *(Promotion of Immunization)*

Like the Child Health Care (Indonesia) project, audience feedback was obtained before the creation of the message itself (IDRC, 1989b). The feedback allowed the producers to better address the relevant issues of immunization. Producers would know the present knowledge of the audience, and therefore could present the information that the audience needed to know.

There were also post-broadcast mechanisms of feedback through in-depth interviews performed by trained researchers and mail-in questionnaires. Through the interviews, the researchers could compensate for the 40% of their audience which could not read or write (Yayasan Kusuma Buana, 1989). Including mechanisms of feedback which did not eliminate the illiterate population of the audience ensured that the audience had many different avenues to voice their concerns.

PROJECT INITIATION *(Promotion of Immunization)*

Yayasan Kusuma Buana was the recipient institution for this project. This organization built a body of knowledge based on the experience it gained from the Child Health Care project. YKB knew that the radio drama or serial was an effective means of reaching their audience based on its entertainment value. They also made several contacts with the private sector, including medical and health personnel, which would benefit them greatly for the purposes of this project (IDRC, 1989b).

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Specific objectives for this organization were to disseminate information to the public of Indonesia on child health care and family planning practices. Therefore, issues ranging from birth control to oral rehydration therapy would be important components in the mandate of this organization (Yayasan Kusuma Buana, 1989).

MEDIA OWNERSHIP/CONTROL *(Promotion of Immunization)*

No information was available regarding which radio stations would be candidates for this project. Based on the recipient organization's prior experience, it was assumed that the private radio stations would collaborate with YKB in this project. The private radio stations were very popular with the lower economic group in both Jakarta and other areas of Indonesia. The development message would therefore have a greater chance of exposure with private radio stations (Yayasan Kusuma Buana, 1989).

YKB was also recruiting the private sector, specifically multinational corporations who sponsored the Child Health Care radio drama, to sponsor this immunization project as well. This further supports the assumption that the private broadcasting would be used for this project (Yayasan Kusuma Buana).

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RADIO AS A COMMUNICATION DEVICE *(Promotion of Immunization)*

TYPE OF INFORMATION *(Promotion of Immunization)*

Little information was provided about this area in the IDRC files. Based on YKB's prior experience, the proposal suggested that the information would be packaged to suit the audience. Through focus group discussions, the organization should have determined if the information was too complex for the audience, or if the messages were readily understood by people of low economic and educational status.

SUPPLEMENTAI. INFORMATION *(Promotion of Immunization)*

Researchers had to disseminate information regarding the importance of immunizations for child health care and family planning to the population of Indonesia, specifically in the North Jakarta and Lombok regions. To supplement this information, health care workers who were directly involved with this target population also had to be informed of services provided by the government regarding child health care. In doing so, supplemental information was available to the semi-urban and rural population (Yayasan Kusuma Buana, 1989). Questions regarding the clarification of the message could be directed towards health care personnel. The target population would naturally assume that those in the health care practice could respond to questions and concerns regarding child health care.

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Unlike the Child Health Care (Indonesia) project, YKB incorporated other media to reach their target audience. Private sector industries who had direct contact with these groups were informed of the services available for immunizations. Leaflets and slide presentations were created for health care clinics to supplement the radio spots on immunizations. If the audience did not have access to radio, or needed clarification for the information presented on radio, YKB ensured that print media and extension workers were available for the audience to receive information on immunizations (Yayasan Kusuma Buana, 1989).

FORMATS UTILIZED *(Promotion of Immunization)*

YKB did not specify the particular format they utilized in the radio broadcast. They stated that message formats and the type of message would be based on their prior experience in development communication. In the last project, this organization specifically stated the importance of entertaining the audience. Through entertainment, the audience's attention could be maintained. Yayasan Kusuma Buana felt that development messages could adequately be understood by the audience through an entertainment format (IDRC, 1984).

NEEDS GRATIFICATION *(Promotion of Immunization)*

Child health care is an important issue in Indonesia. There is a high infant mortality rate, 187 per 1000 births. The government created an Expanded Program in Immunization (EPI) in 1977 to combat this high infant mortality rate. Yet little information was known about this programme, by both the population of

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Indonesia, as well as those working in the health care field (Yayasan Kusuma Buana, 1989).

The population of Indonesia may not understand the importance of child immunizations. The project tried to create the awareness of the need for immunizations for adequate child health care (IDRC, 1989b).

TECHNICAL REQUIREMENTS *(Promotion of Immunization)*

RECEPTION CAPABILITIES *(Promotion of Immunization)*

The target population, through the focus group discussions, could define the media they used. Radio was used, quite successfully, in the prior project in the Jakarta region because it was accessible.

However, Lombok, one of the site areas for the project, is a rural community. In Jakarta, women played the radio loudly to ensure that all women in their community could hear the radio programme (Yayasan Kusuma Buana, 1987). In Lombok, where the majority of the population live in rural villages, there were fewer radios and more distance between homes. Health care and private sector workers, along with leaflets about immunizations were used to ensure that information was provided to the people who did not have access to radios.

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TRANSMISSION CAPABILITIES *(Promotion of Immunization)*

Indonesia has several private radio stations. In Jakarta, the signals are strong and clear (Chin, 1986b). Since Indonesia is comprised of several small islands, transmission might not be as clear to every island. Jakarta and Lombok represent the only test sites of the project (Yayasan Kusuma Buana, 1987). The programme was to be transmitted to all areas of Indonesia after the initial testing in these two regions. It was not clear if signals to other areas in Indonesia were as strong and clear as those in Jakarta.

ECONOMIC FEASIBILITY *(Promotion of Immunization)*

Pregnant women and children were to receive immunizations free-of-charge at government based and community health care clinics. According to YKB, the Rotary Club of Indonesia was to have funded all immunizations for the next five years. It was economically feasible for the state to fund this project (Chin, 1988a).

Advertising revenues from the private sector could sustain this programme after the termination of IDRC funding. To increase the exposure of the message, corporations were asked to place information on product labels about the immunization programme (Chin, 1988a).

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SOCIAL FEASIBILITY *(Promotion of Immunization)*

Since the target audience of North Jakarta and Lombok were participants in focus group discussions, the message would be appropriate to their culture. The messages would be broadcast in the language appropriate to the particular region. However, IDRC had concerns about the appropriateness of the message to other areas in Indonesia (Chin, 1988a). Since there are several ethnic and linguistic groups in Indonesia (Europa, 1991), it would be difficult for one message to be suitable for all socio-cultural groups. The message would have to be adapted to these differences.

The **Promotion of Immunization** project modified the components of the Grassroots model to fulfil its objectives. By knowing and testing their target audience, they were able to practice the components of radio as a communication device. Although the recipient institution examined the economic and social components of the technical requirements of radio, there was no information available about the transmission or reception capabilities of their audience, so this aspect of the criteria was impossible to assess.

Mass Media and Oral Health (Kenya)

24-09-1990 to 24-09-1991

This project sought to deliver information about oral health (specifically the beneficial effects of chewsticks) to the rural population of Kenya through radio programmes and newspaper articles.

GRASSROOTS PARTICIPATION *(Mass Media and Oral Health)*

AUDIENCE PARTICIPATION *(Mass Media and Oral Health)*

No information was available about the audience's participation in the production or decision-making level of the radio production.

AUDIENCE FEEDBACK *(Mass Media and Oral Health)*

This project, which aims to disseminate information about the benefits of using chewsticks for good oral health, is based on feedback from medical and dentistry clinics. More than 3000 booklets were distributed to these professionals based on the findings of the Mazingira/IDRC chewstick study. These health care workers felt that the broader public should be informed of the benefits of using chewsticks (IDRC, 1989a).

Within the design of the project itself, the only mechanism available for the public to voice their concerns was through a panel discussion. After the radio

messages were to be broadcast, a panel of rural listeners would be questioned on the validity of the message (IDRC, 1989a).

PROJECT INITIATION *(Mass Media and Oral Health)*

The Mazingira Institute in Nairobi, Kenya, was the recipient institution for this project. This organization is private and operates on a non-profit level. This institution initiated this project because multinational corporations were promoting the benefits of using toothbrushes and toothpaste. If the rural and semi-urban population of Kenya could use a natural substance which was already accessible, there would be no need to spend hard earned money on manufactured goods (IDRC, 1989a).

MEDIA OWNERSHIP/CONTROL *(Mass Media and Oral Health)*

The Voice of Kenya is the only radio broadcasting service in Kenya. Therefore, the radio production would be broadcast on this government-owned and operated service. There are three distinct services offered through the Voice of Kenya. The national service is in Kiswahili, the official language of Kenya. The general service is in English. The vernacular service is in several different languages and dialects depending on the listening audience, such as Hindustani, Kikuyu, Kikamba, Kimeru, etc (Europa, 1992).

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RADIO AS A COMMUNICATION DEVICE *(Mass Media and Oral Health)*

TYPE OF INFORMATION *(Mass Media and Oral Health)*

There was no available information which specifically stated the type of information to be broadcast during the radio programmes. The programmes were designed for the rural and semi-urban population. Message validation through the panel of rural participants would determine if the target population could understand the information clear¹ (IDRC, 1989a).

The guide to chewsticks used a semi-comic book form. There were many pictures and diagrams describing issues about good oral health. Although some of the language that was used in coordination with these graphics was complicated at times, the writers attempted to frame the technical terms in understandable expressions (Mazingira Institute, 1989b).

SUPPLEMENTAL INFORMATION *(Mass Media and Oral Health)*

The guide to effective oral health, created in the Mswaki research project, was distributed to medical and dentistry clinics in Kenya. Therefore, oral health personnel had access to the benefits of chewsticks, and could field questions from the public. This guide would also be available to the public if they requested further information after hearing the radio broadcasts (Mazingira Institute, 1989a).

The project disseminated information through a newspaper supplement. This supplement discussed the scientific findings of the mswaki research project,

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the proper use of the chewstick and on which trees the chewstick can be found. In Kenya, it is estimated that approximately 84% of the rural population reads or has access to information in a daily newspaper. One newspaper, the Daily Nation can reach an estimated one million people (IDRC, 1989a). A press kit was also distributed to alternative print and broadcast news agencies. Kits of the artwork or graphics were distributed at no cost to rural newspapers.

FORMATS UTILIZED *(Mass Media and Oral Health)*

In the initial stages of the project, information was to be broadcast in five minute spots. These spots could be grouped to form a 15 minute episode. During the project, the recipient institution believed that the spots should be part of a larger magazine programme. This programme would address the larger field of economics, diet and oral health. This magazine format was not to be funded by IDRC, but by other private sources in Kenya (George and Gelmon, 1991).

NEEDS GRATIFICATION *(Mass Media and Oral Health)*

Oral health might not be highly relevant to the rural population in Kenya. Agricultural issues may be more important to citizens of this country where 28% of the Gross Domestic Product and 77% of the work force is connected with agriculture (Europa, 1992). Furthermore, the public may believe that oral health is not a problem since a solution has already been found in using the manufactured goods.

TECHNICAL REQUIREMENTS *(Mass Media and Oral Health)*

RECEPTION CAPABILITIES *(Mass Media and Oral Health)*

Kenya has an average of 91 receivers per 1000 inhabitants (UNESCO, 1992). Much of the rural population may not have access to radio. However, information does travel between the urban and rural sections of Kenya, as well as through opinion leaders and the literate population. The Mazingira Institute decided to target groups that could influence the rural population by designing specific messages to medical and health personnel. By targeting influential groups, the Mazingira Institute felt that information could be accessible to the rural population who did not have access to the radio broadcasts (Mazingira Institute, 1989a).

TRANSMISSION CAPABILITIES *(Mass Media and Oral Health)*

No information was available on the transmission capabilities of the vernacular and general services for the Voice of Kenya.

ECONOMIC FEASIBILITY *(Mass Media and Oral Health)*

Since chewsticks grow wild on an estimated 250 different plant species, there is no cost to the government or the private sector in providing the chewsticks to the public (IDRC, 1989a). The means to achieve good oral health is economically accessible to the public.

SOCIAL FEASIBILITY *(Mass Media and Oral Health)*

The Mazingira Institute recognized that language was an important component in the design of the message. Kiswahili is the official langv ge of Kenya, and is spoken by the majority of the rural population. Although English is quickly becoming the literary language, it was not the desired language of choice for reaching the rural audience. Therefore, the Kiswahili service of the Voice of Kenya was used for radio broadcasts, and most of the newspaper supplements were written in Englis.. If the Kiswahili service was not used, the Institute felt that much of the rural population would not have access to the dissemination of the chewsticks research project results (IDRC, 1989a).

By providing information to influential groups, such as opinion leaders and people in the health industry, the Institute felt that information would be provided to the target population. Information could be provided directly through the radio broadcasts, or indirectly, through interpersonal channels (IDRC, 1989a).

The **Mass Media and Oral Health** project did not practice the components of the Grassroots model. However, by understanding their target audience, they were able to use radio as an effective communication device and adequately fulfilled the technical requirements of radio.

Plantain (Ghana)

14-03-1991 to 14-03-1994

This purpose of this project is to disseminate agricultural information to farmers in rural Ghana through radio broadcasts.

GRASSROOTS PARTICIPATION *(Plantain)*

AUDIENCE PARTICIPATION *(Plantain)*

The audience had little input in the production or decision-making elements of the message. However, field researchers went to several different sites to speak with farmers. By understanding the concerns of the farmers, researchers could design a development message which would be accepted by the target population (IDRC, 1990b).

AUDIENCE FEEDBACK *(Plantain)*

Before the development of the radio programme, the target audience could voice their concerns to the researchers during site interviews. Farmers were also interviewed for radio broadcasts and had the opportunity to call in on live talk shows (IDRC, 1990b).

Follow-up interviews were also planned to observe whether farmers understood the information presented on the radio broadcasts. If information was

not readily understood, appropriate modifications would be made to the agricultural programme (IDRC, 1990b).

PROJECT INITIATION *(Plantain)*

The Crops Research Institute in Kumasi, Ghana, was the primary recipient institute for this project. Specializing in improving agriculture and agricultural technologies in Ghana, they are prohibited from studying crops such as cocoa, cola, coffee, oil palm and sheabutter. The purpose of this organization is to discover or improve on present crops which would create a more conducive agricultural climate for Ghana (IDRC, 1990b).

The Agricultural Research Station collaborated with the Crops Research Institute on this project. This institute seeks to improve perennial and semi-perennial agriculture. It also serves as an educational institution for the Faculty of Agriculture and the Extension Service of the Ministry of Agriculture (IDRC, 1990b).

MEDIA OWNERSHIP/CONTROL *(Plantain)*

The Ghana Broadcasting Company is the only radio broadcasting service available in Ghana. This corporation has both a public and commercial service. Both the public and commercial sectors offer service in a variety of different languages. They are broadcast in English, the official language of Ghana, and in Akan, Dagbani, Ewe, Ga, Hausa, and Nzema (Europa, 1991).

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RADIO AS A COMMUNICATION DEVICE *(Plantain)*

TYPE OF INFORMATION *(Plantain)*

There was no information on the radio programmes in the IDRC files, as the radio broadcast had yet to begin (IDRC, 1990b). However, from the research gathered, much of the information was very technical. It examined, in detail, every aspect of agricultural cultivation. For the radio project, this language would have to be simplified for the farmers to understand it. There is a 39% illiteracy rate in Ghana, and 30% of males are illiterate (Europa, 1991). Much of the language used in the progress report is cloaked in agricultural and scientific jargon, and may not be appropriate for their target population (IDRC, 1991b).

There are means in the project to compensate for the complexity of the information to be disseminated. Field visits were to be conducted both before and during the radio broadcasts to determine the most appropriate message design for the target audience (IDRC, 1990b).

SUPPLEMENTAL INFORMATION *(Plantain)*

One of the project objectives provided indepth agricultural training of graduate students and field workers. Forty extension workers and forty farmers from various regions were to be directly educated using the findings of the conducted research by the recipient organization. The purpose of educating the farmers was to provide an example of how the research could be applied (IDRC, 1990b). These were the only mechanisms of supplemental information in the project.

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FORMATS UTILIZED *(Plantain)*

The radio programme would have two major sections: taped radio interviews with farmers and a talk show. Through this format, farmers could provide feedback on the issues discussed either indirectly through the interviews, or with direct questions through a call-in talk show. The radio programme will be 20 minutes, and will air bimonthly for 24 months (IDRC, 1990b).

NEEDS GRATIFICATION *(Plantain)*

Agriculture is an important component in the economy of Ghana. It contributed 50% of the Gross Domestic Product, and 50.5% of the workforce participated in this field. Because of recent weather conditions and the instability of the agricultural field, the economy of Ghana has been negatively influenced (Europa, 1991).

Plantain is an essential crop in Ghana. Many farmers use plantain as their main agricultural crop. Plantain is an essential component of many meals in Ghana, since it can be prepared in several ways. Many regions in this state, where 60% of the total population resides, do not consider a meal without plantain to be substantial. Therefore, this crop is necessary for the internal stability of Ghana (IDRC, 1990b).

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TECHNICAL REQUIREMENTS *(Plantain)*

RECEPTION CAPABILITIES *(Plantain)*

Ghana had an average of 294 receivers per 1000 inhabitants in 1988,

higher, on average, than many developing countries (UNESCO, 1991).

TRANSMISSION CAPABILITIES *(Plantain)*

In Ghana, there are two transmitting stations, and more than 50 relay

stations (Europa, 1991). Because of the geographic features of Ghana, the

transmission facilities should be adequate to transmit strong and clear messages.

ECONOMIC FEASIBILITY *(Plantain)*

Plantain is an essential component of the economy of Ghana. Men farm it;

women sell it and families are consumers of it. Its versatility makes it important

component in daily life and the economy (IDRC, 1990b).

Most of the research performed by the recipient institution was to improve

the productivity of this crop. Many findings could be adequately applied by the

farmer at no additional financial burden. Yet there was no available information

on financial supplements for farmers. Since research was performed on pest and

disease control (IDRC, 1990b), how will the farmers financially incorporate the

suggestions of the report into their daily practice?

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SOCIAL FEASIBILITY *(Plantain)*

The Ghana Broadcasting Company broadcasts in a variety of different languages (Europa, 1991). This should allow the majority of farmers to understand the radio broadcasts. As well, since the project is targeted towards farmers, and not students or technicians in the agricultural field, the terms and jargon used should be understood by the target audience.

The audience participated in the **Plantain** project through the on-site interviews. Therefore, only the feedback component of the Grassroots model was practically applied. However, the producers understood their target audience and were able to use radio effectively as a communication device. They were also confident that the message would be adequately exposed to their target audience.

Chapter Seven

Concluding Remarks

The purpose of development communication is to reach a group of people and attempt to change their behaviour. Development communication must be effective and efficient to produce this behaviour change. Theorists have developed concepts to use radio to produce these changes. The three different theoretical components of development communication have been tested against the IDRC projects using radio. This chapter contains a summary of the findings.

GRASSROOTS PARTICIPATION

The grassroots theory is the dominant paradigm in development communication. The four critical areas for the grassroots theorists are audience participation, audience feedback, project initiation and media ownership and control (Berrigan, 1981; Bordenave, 1977; Dissanayake, 1981; Hein, 1980; Hornik, 1988; Magalang, 1976; Mody, 1991; Rodrigo, 1989; Stover, 1984; Wang and Dissanayake, 1982). My investigation has shown that, while the elements of this theory are practised in part, some aspects of the theory can be modified to remain true to the intent of the theorists if not their specific desires. Remaining true to the theorists' intent can improve the efficiency and effectiveness of the project.

Theorists want the audience to participate in the design and formulation of the message (Berrigan, 1981; Dissanayake, 1981; Hein, 1988; Mody, 1991). Practically, this concept may be unfeasible. The audience may not be able to

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identify the formats and appeals or content which they need for effective communication. In short, they may not be able to tell a designer how to communicate effectively with them. Practically, IDRC projects tried to remain true to this principle by using interviews and focus group discussions (See Table 7.1). The interviews and focus group discussions were conducted before the initiation of the project or while it was running. Project leaders appear to have suggested formats and content and then verified the potential messages with the audience members. This action does not contradict the principles of grassroots theories. The audience still has input. In one project, the frequency of the transmissions was increased at the suggestions of the audience members.

Grassroots theorists believe that the audience must have accessible channels of feedback to voice their concerns about the development message (Bordenave, 1977; Eschenbach, 1977; Hein, 1988; Magalang, 1976; Mody, 1991; rodrigo, 1989; Stover, 1984; Wang and Dissanayake, 1982). All IDRC projects used feedback to verify if the audience understood the message (See Table 7.1). Although many projects used a post-broadcast channel of feedback, such as written responses and interviews, audience pretesting also served as a valuable tool. Prior to broadcasting the development message, feedback from the audience verified that they understood both the purpose of the message and the components needed for change. Audience feedback can be obtained to alter the development message before it is broadcast. Pretesting increases the effectiveness and efficiency of the development message.

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Table 7.1: Use of Elements in Grassroots Paradigm by IDRC Projects

GRASSROOTS PARTICIPATION

	Science Popularization	Child Health Radio	Immunization	Oral Health	Plantain
AUDIENCE PARTICIPATION	Interviews	Focus Group Discussions	Focus Group Discussions	No Info Available	Interviews
AUDIENCE FEEDBACK	Written responses, interviews	Audience Pretesting	Audience Pretesting, Interviews, Questionnaires	Panel Discussions	Interviews Call-in Radio Talk Show
PROJECT INITIATION	Government agency	Private, Non-Profit	Private, Non-Profit	Private, Non-Profit	Government Agency
MEDIA OWNERSHIP AND CONTROL	Government	Private	Private	Government	Government

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Theorists believe that the audience should initiate development (Bordenave, 1977; Carmen, 1989; Dissanayake, 1981; Hornik, 1988; Mody, 1991; Monu, 1989; Rodrigo, 1989; Stevenson, 1988; Stover, 1984). This would eliminate the infiltration of external or government values during development. All IDRC projects were initiated by internal organizations who were in direct contact with the target audience (See Table 7.1). Although these organizations came from both the public and private sector, each acted on behalf of the target audience. In many projects, the target audience had no means of obtaining information regarding development. The audience might not even believe or know that a development issue is necessary. For example, the Mass Media and Oral Health project dealt with an issue that had been resolved by the audience. The audience could maintain good oral health with manufactured goods. They needed to know that there were more economically feasible means of maintaining good oral health.

Theorists claim that the audience should own and control the media system (Berrigan, 1981; Dasoma, 1990; Stephens, 1989). It would be extremely difficult to practically apply this concept, based on the financial constraints of the audience. There were no IDRC projects which used audience or community owned radio systems (See Table 7.1). Instead, IDRC projects had to work within the framework of the developing country. Many developing countries only had a government-owned and controlled radio system, therefore IDRC projects had to be broadcast on government stations. Private radio stations were used in Indonesia. Audience-owned and controlled radio stations are not economically feasible in the developing world.

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The purpose of the Grassroots model of development communication is laudable. However, modifications must be made to the components of the theory for the theory to be practically applied. Audience pretesting is a viable alternative to audience participation. Accessible channels of feedback are necessary components of development communication. Projects should be initiated from groups in direct contact with the audience. Finally, audience-owned and controlled media are not economically feasible in the developing world. Instead, organizations specializing in development must work within the environment of the developing country.

RADIO AS A COMMUNICATION DEVICE

The second component in the radio environment is the use of radio as a communication device. Producers must examine radio's ability to communicate through four tools: the type of information, the use of supplemental information, the formats utilized and needs gratification.

Theorists claim that the type of information must be conducive to audience abilities (Bates, 1984; Bogue, 1979a; Brown, 1986; Crisell, 1986; Harris, 1989; Johnston, 1987). IDRC projects attempted to use appropriate information in development projects (See Table 7.2). In the Indonesian projects, audience comprehension of the message was verified through pretesting of the information. However, the audience could not understand the information in the Science Popularization project because it was too technical. The information was very

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Table 7.2: Use of Elements in Radio as a Communication Device by IDRC Projects

RADIO AS A COMMUNICATION DEVICE

	Science Popularization	Child Health Radio	Immunization	Oral Health	Plantain
TYPE OF INFORMATION	Too technical	Appropriate	Appropriate	No Information Available	Technical Information
SUPPLEMENTAL INFORMATION	Newspaper Articles	None	Extension Workers Leaflets, Slides	Booklets, Leaflets, Newspaper, Extension Workers	Extension Workers
FORMATS UTILIZED	Magazine Format	Soap Opera	Soap Opera	Magazine Format	Radio Talk Show
NEEDS GRATIFICATION	Did not address need	Addressed need	Created need	Created need	Addressed Need

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technical in the Plantain project as well. If the audience cannot understand the message, then the purpose of the message will not be adopted.

There should be supplemental information available to the audience (Bates, 1984; Bogue, 1979a; Chakrabariti, 1967; Kinder, 1973; Rajasundaram, 1981; Romiszowski, 1974). Practically, this is an essential concept in effective and efficient communication. If the audience does not understand the information then they must have other avenues available to respond to their concerns. Most IDRC projects used printed materials, such as newspaper articles and leaflets, to clarify information broadcast on the radio (See Table 7.2). However, printed materials eliminated the illiterate, a large segment of the population in the developing world. Therefore, extension workers were used in many IDRC projects. Extension workers can respond immediately to audience concerns, a characteristic unshared by media. Although the Child Health Radio project does not reflect the necessity of supplemental information, this component is essential to achieve effective and efficient communication.

Theorists claim that how the information is packaged, or which formats are used, must be conducive to the audience (Bates, 1984; Bogue, 1979a; Bogue, 1979d; Jenkins, 1981; Reynolds and Anderson, 1992). Practically, this is an important concept in communication. The audience's attention must be captured and kept for the audience to be exposed to the development message. IDRC used a wide variety of formats to achieve this goal (See Table 7.2). The Indonesian projects used

audience pretesting to discover what the audience liked to listen to. The recipient organization believed that if purpose of the development message would be exposed if the audience was entertained. In Indonesia, soap operas were preferred among the target audience. The audience was very receptive to this format, and therefore to the development message.

Theorists claim that the development message must address the needs of the audience (McAnany, 1979; Hornik, 1988). If the audience does not feel that the purpose of the development message is necessary, then they will not adopt the message. IDRC projects addressed the needs of their audience (See Table 7.2). Where these needs were not addressed, as in the Science Popularization project, future projects sought to remedy this error. The second phase of this project examined issues relevant to the audience such as health care and agricultural issues. The audience was more receptive to this phase of the project because the information was useful.

IDRC projects, in some cases, had to create the need in the audience. Both the Immunization and Oral Health projects had to inform the audience about the benefits of a present system. This information would benefit the audience. Needs must be created where the audience lacks information and knowledge.

The communicative properties of radio propose practical solutions to communicating effectively and efficiently. To communicate well, producers must know and incorporate the abilities of their audience.

THE TECHNICAL REQUIREMENTS

The last component in the radio environment is the technical requirements of radio. The audience must be exposed to the message for development to occur. There are four stages in exposing the message: reception capabilities, transmission capabilities, economic and social feasibility.

Theorists claim that the audience must be able to receive the message (Githiora, 1990; Herrmann, 1979; Laflin, 1989; Okwudishu, 1988). They must have access to radio receivers, as well as batteries or electricity. IDRC projects had little information about the reception capabilities of the audience (See Table 7.3). Recent UNESCO statistics demonstrate that many inhabitants do not have access to radio sets. These statistics do not consider access to batteries to maintain these sets. Without this information, IDRC cannot verify the audience's exposure to the development message.

Theorists also claim that the transmission signal must be strong and clear for the audience to understand the development message (Githiora, 1990; De Keiffer, 1965; Laflin, 1989). Only two IDRC projects verified the clarity of the signal (See Table 7.3). The broadcast signal was strong during Child Health

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Table 7.3: Use of Elements of Technical Requirements by IDRC Projects

THE TECHNICAL REQUIREMENTS

	Science Popularization	Child Health Radio	Immunization	Oral Health	Plantain
RECEPTION CAPABILITIES	33 receivers per 1000 inhabitants	Message adequately exposed	No information available about rural regions	91 receivers per 1000 inhabitants	294 receivers per 1000 inhabitants
TRANSMISSION CAPABILITIES	Weak signals	Strong signal	No information available about rural regions	No information available	Two transmitting stations, 50 relay stations
ECONOMIC FEASIBILITY	No economic means	No information available	Economically feasible	Economically feasible	No information available
SOCIAL FEASIBILITY	Language not appropriate	Socially feasible	Socially feasible	Socially feasible	Socially feasible

Radio. However, most rural communities could not hear the broadcast of the Science Popularization project because they lived in mountain regions. The other three projects did not examine the strength and clarity of the broadcast message. IDRC projects must incorporate this information to achieve effective and efficient communication.

Development must be economically feasible (Bordenave, 1977; Hornik, 1988). The audience must have the economic means to adopt the development message. Two IDRC projects were economically feasible for the audience (See Table 7.3). The Oral Health and Immunization projects proposed services which were free to the audience. However, there was no information available about monetary assistance to the audience in the Child Health, Science Popularization and Plantain projects. If any of these projects involved the purchasing of goods to adopt the development message, then economic aid must be available to the audience. If development is not economically feasible, the purpose of the message will not be adopted by the audience.

Theorists claim that the development message should be socially feasible (Bogue, 1979d; Carmen, 1989; Friend, 1988; Rajasundaram, 1981). The message should be broadcast in the language of the target audience. The target audience should be directly exposed to the development message. All but one IDRC project used appropriate languages in the development message (See Table 7.3). However, the development message targeted both an indirect and direct audience. IDRC

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projects targeted extension and health workers as well as the direct audience. Extension and health workers could then expose the information to the target audience. They could also respond directly to audience concerns. Targeting an indirect and direct audience would increase the exposure of the development message.

Exposure of the development project should be the primary issue in development communication. IDRC projects try to ensure that additional avenues are available to the audience to receive the information. The economic and social feasibility of a project are viewed as essential procedures in the development process. Yet there are few available facts on the audience's ability to receive the message, either through the reception or transmission capabilities in the developing states. When this information is not available, there is no affirmation that the audience is adequately exposed to the development message.

The lack of audience evaluation reflects an important limitation of development communication. In an IDRC (Raymond, 1987, p. 3) evaluation report, a representative claims,

> "This seems to be another project that falls into the terrible dilemma
> that IDRC faces. There is clear evidence that the project was well
> organized, well monitored, and that it achieved positive results. Yet,
> the full extent of the results is difficult to establish. It is possible
> that clearer indications of the success of this project may be found on
> the 1000 pages of documentation in ASRO".

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To understand whether the message is adequately exposed and if the audience can understand the essential components of the message must play a primary role in development communication. If producers are not certain if the audience will be exposed to radio messages, then radio should not be used in development communication. Radio should also not be used if the audience cannot understand or apply the essential components of the message when broadcast through radio. It is only when producers know the limitations of media and their audience that the utilization of certain media should be employed for effective and efficient communication.

An Effective Radio Environment

By studying how theory can be practically applied in development communication, I hope I have demonstrated what is necessary to achieve effective and efficient communication. Producers must learn to examine the radio environment as a whole. Collectively, the three fields examined in this thesis constitute the radio environment. Each field has components which producers should not neglect when designing development messages.

The Grassroots model states that the audience should have control over their own development. Practically, producers should involve the audience in creating the development message. Audience pretesting is a viable technique of achieving this goal. Producers should also incorporate accessible channels of feedback in the development message. The audience must have the ability to voice

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their concern about the development issue. Feedback also ensures that the audience understands the purpose of the development message.

Producers should also recognize the important components of radio as a communication device. The type of information and the formats used should reflect the abilities of the audience. Broadcast pretesting is a viable means of ensuring that the audience enjoys and understands the development message. Supplemental information is also a necessary requirement when using radio as a communication device. Radio should never be used unaccompanied by other means of receiving the information. Because of the high rate of illiteracy in developing countries, extension workers should be used to respond to audience concerns. Extension workers are an essential element in the development process.

Finally, the audience must be exposed to the message. If producers cannot confirm that the audience will receive the message through radio broadcasts, then radio should not be used as the primary source of disseminating information. Development communication will only be effective and efficient when producers examine the radio environment as a whole.

Other Avenues for Research

The purpose of this thesis was to test whether theoretical concepts could be applied in development projects. From this test, one can determine a conducive environment when using radio as a primary means of disseminating information in development communication. Since the concepts in the grassroots paradigm, radio as a communication device and the technical requirements of radio all overlap and heavily influence each other, this thesis represents a comprehensive approach in studying the radio environment.

Testing the application of theoretical components was limited to the information in IDRC files. A more in-depth analysis of projects might have illuminated explanations for the practice of some theoretical components, and the exclusion of others. Access to the recipient institution's confidential files might have provided additional information to respond to the concerns of this thesis.

It should be noted that the variables used in this thesis reflect only those which theorists have deemed important in development communication. Practitioners might claim that other areas are critical to examine in the radio environment. The broadcasting policies within the state exemplify another component which, although not considered in this thesis, might inhibit the audience's exposure to the message. Therefore, this thesis does not reflect every factor in the radio environment. It only tests the application of components believed important by theorists in a variety of fields.

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Lack of research in certain areas reflects an important issue that must be studied. Little information is available about the number of radio receivers in developing countries. The UNESCO statistics only count radios, they do not examine which radios are in operation. With the lack of electricity and the high cost of batteries, a number of working radio sets might not be operable. Although radio is known as "man's most universal medium", little research is performed to verify this fact.

There needs to be more research performed on audience evaluation. Only two of the five projects did extensive research prior to broadcasting information. It appears as though these projects were more successful. Success here is defined in by audience comprehension. Development will not be successful if the audience does not understand the message.

Finally, more research needs to be done on the effectiveness of theory. Theory is only effective when it can offer us practical and feasible solutions to problems. Theory which does not answer questions only contributes to the problem. We must learn how to identify avenues to achieve positive change.

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Appendix 1

List of the International Development Research Centre Projects:

(1) Family Planning and Sex Education Through Radio (CIACO?)
(2) Radiophonic Schools (Latin America)
(3) Popular Education (Latin America)
(4) Aymaran Radio Programs (Bolivia)
(5) Rural Radio Programs (Peru)
(6) Mass Media, Participation and Development (Peru)
(7) Communications, Institutions and Policies (Chile)
(8) Depthnews Science Feature Service - Phase I
(9) National Communications Policy (Brazil)
(10) Mass and Alternative Media (Bolivia)
(11) Assessment of Educational Radio Programs (Peru)
(12) Training in Science Broadcasting (Asia)
(13) Quechua Songs for Radio Programs (Peru)
(14) Science and Technology Features Service (Kenya)
(15) Workshop on the Role of Radio in Science Popularization
(16) Science Popularization (Nepal) - Phase 1
(17) Training in Science Communication (Gredes)
(18) Science and Technology Features Service (Latin America)
       Phase I
(19) Depthnews Science Features Service - Phase II
(20) Journalists Training on Popularization of Science
(21) Science and Technology Feature Service (Kenya) - Phase II
(22) Environmental Writing (Egypt)
(23) Child Health Radio (Indonesia)
(24) Science and Technology Features Service (Latin America)
       Phase II
(25) Depthnews Science Feature Service - Phase III
(26) Production and Evaluation of Science Radio Programs (Swaziland)
(27) Education and Cultural Policies (Chile)
(28) Training in Science Broadcasting (Caribbean)
(29) Popularization of Science and Technology (Ethiopia)
(30) Packet Radio Experimentation (Lesotho)
(31) The Role of the Mass Media in Nonformal Education (Argentina)
(32) Women's Radio (Philippines)
(33) Social Participation of Women (Chile)
(34) Mobilization of Private Sector Resources for Promotion of
       Immunization (Indonesia)
(35) Radio Program Evaluation
(36) Science Popularization (Nepal) - Phase II
(37) Mass Media and Oral Health (Kenya)
(38) Science and Technology Features Service (Kenya)
       Phase III
(39) Plantain (Ghana)
(40) Audio-Visual Encyclopedia (Senegal)

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(41) Depthnews-IDRC Features
(42) Circulation of Scientific Information
(43) Evaluation of the Development Through Radio (DIR) Project
(Zimbabwe)
(44) Using Radio Listening Groups for Improving Farmer Adoption of
Research Results (Kenya)
(45) AIDS Education in Ghana
(46) Nutrition Education for Young Women (India) - Phase II

VITA AUCTORIS

Amanda Rosemary Hayne was born in Wainfleet, Ontario. She earned her B.A. in Communication Studies at Brock University, St. Catharines, Ontario, and her M.A. in Communication Studies at the University of Windsor.

While at the University of Windsor, Amanda worked as a teaching assistant in message design, methodology and statistics. She also worked as a researcher in the Law Admissions Study for the University of Windsor School of Law.

Amanda's interests include development communication and research methodology. Her outside interests includes photography, biking, hiking, and dogs. She hopes to one day visit every country in the world.