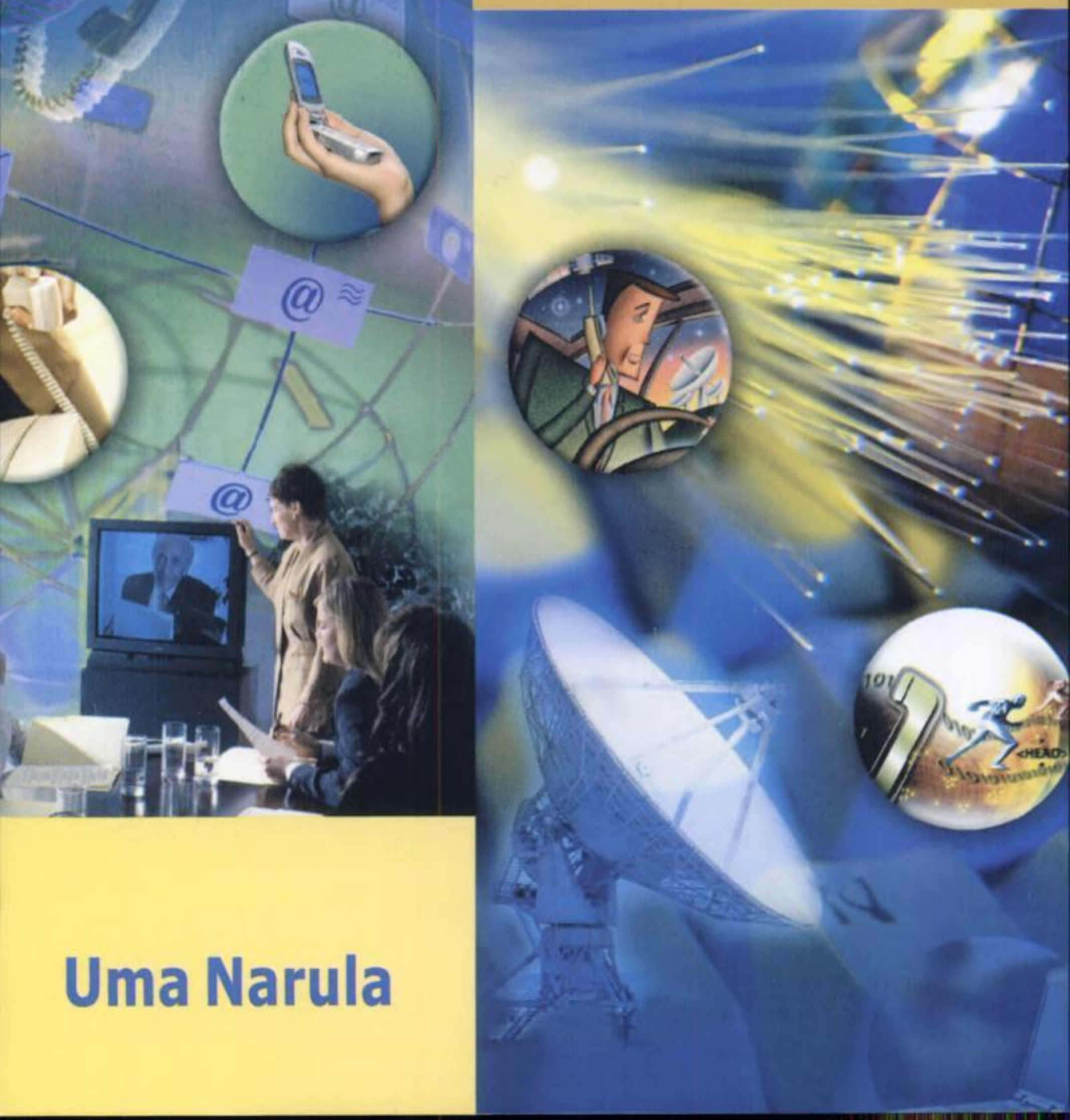
Handbook of Communication

Models, Perspectives, Strategies



Uma Narula

Published by

ATLANTIC®

PUBLISHERS & DISTRIBUTORS
B-2, Vishal Enclave, Opp. Rajouri Garden,
New Delhi-110027
Phones : 25413460, 25429987, 25466842

Sales Office
7/22, Ansari Road, Darya Ganj,
New Delhi-110002
Phones : 23273880, 23275880, 23280451
Fax : 91-11-23285873
web : www.atlanticbooks.com
e-mail : info@atlanticbooks.com

Printed in India
at Nice Printing Press, Delhi

CONTENTS

List of Figures

Pages

INTRODUCTION

Vision 2000 decades—perspectives on how love, or peace, family, race, art, literature, community, spirituality, politics, science and technology will change for future generations.

Communication Framework

Over the last six decades there has been increasing interest in the study, applications, practice and research in Communication discipline. Research in Communication has conceptualized communication *per se* in 40s and 50s, and to develop Model and Theories. In short, to learn what communication is, how it works, and to develop means of communicating more effectively in diverse areas affecting human conditions in societal and economic contexts.

Earlier, Communication discipline had borrowed concepts and models from other disciplines of psychology, sociology, and anthropology etc. Over a period of time, it developed its own concepts, models, theories and assumptions through Communication Research. Such research has supported, refuted or improved upon various assumptions, constructs and other factors that have impact on changing perspectives on communication models, theories and practice. Various factors such as the historical analysis of communication theories, assessment of ongoing socio-economic and political realities, new insights and experiences gained through empirical research has created diverse communication perspectives. Moreover, human communication itself undergoing change due to various factors has impacted these perspectives.

Looking at communication as an essentially organizing feature of human society, over a period of time, different scholars with different assumptions and methods developed

different paradigms to assess and evaluate the human communication *per se*.

Over a period of time different Mass Communication Models developed in consequence to our changing understanding of the concepts, elements of communication process, and communication rules.

Researches also advocated, supported and developed different perspectives from which communication has been studied and applied overtime.

Change is an ongoing process in the human communication environment, in societal set-up and in information and communication technologies (ICT), and also in the development efforts by the societies. Such changes in these areas create new prospects for communication *per se*, for communication environment, and changes in conceptualizations both in theory and practice to meet the ever-changing demands.

The major constraint of these ever-changing demands is that communication is getting complex overtime. There are complexities in communication opportunities both technologically as well through social access. To coordinate communication complexities and the demands of the masses, newer rules and regulations, censorship and controls are created to restrain the opportunities. Another constraint is that, on one hand, the efforts to practice and create a globalization perspective on communication have made communication complex. On the other hand, it has created demands for culture specific models and communication perspectives since there is realization that every society has its own cultural identity, communication environment, role, rules and strategies.

But these two constraints have rather stimulated more theory and research and diverse perspectives in Communication discipline.

Concept of Communication

Communication is interaction with ourselves, with others and with our external and internal environments. The focus of our communication is sometimes defined, sometimes undefined and vague. Similarly not all times we are conscious of our purpose of communication or the effects that our

messages will have on the targeted receivers. Our communication may not be comprehensible all time and for everyone. But communicate we must and we must express ourselves. It is necessary and important human activity to survive and grow.

The animals, the birds, the insects, the tree and the plants all communicate. To us it may not be comprehensible just as our communication may not be comprehensible to them.

Human communication and non-human communication through technology is the context of our discussions.

The human effort is to discover nature, essence, and dynamics of communication to learn what communication is and how it works and to develop means of communicating more effectively. Over the last few decades, there has been increasing interest in the study and practice of 'communication'. As a result, knowledge and definition of 'communication' has varied widely in terms of purpose, nature, level of abstraction and scope.

In human (public) communication, three major elements play a significant role. These are Ethos, Logos, and Pathos. Ethos refers to the character of the speaker, Logos is power of reason and evidenced in text and speech and Pathos is emotions elicited in an audience.

Communication is a social process, and countless ways in which human beings keep in touch with one another. The messages in a shared environment could not only be oral, written, non-verbal, visual or olfactory but these could also be laws, customs, practices, ways of dressing, gestures, buildings, flags, gardens, exhibits, etc. Language and body synthesizers that are culture specific are essential components of messages. People in communication define the various types of society, sub-society and groups. The characteristics of these depend on the modes of communication they possess, media exposure, rituals and personal relationships.

The conventional concept of communication is that we use communication to express our inner purposes, attitudes, and feelings; to describe events and objects of the external world and to produce sharing between the speaker and the

audience addressed. The patterns of social communication constitute the world, as we know it.

Pearce (1989) presents the premise that we live in communication rather than outside of communication and use communication for our own purposes. In the era of communication revolution, communication is far more important and central to human condition than ever before realized. There is recognition that multiple forms of communication exist in human society. These forms are not neutral. They are alternative forms of being human. Each qualitatively different form of communication affords a particular array of opportunities and problems.

Communication is the locus of forces through which persons create and manage social realities. Social reality includes concept of Self, Community, Institutions, and Cultures. Through communication we create concept of SELF–who we are, we create relationships within the community and build institutions. We communicate and act together to create and recreate community relationships that are managed within a culture.

Communication has been subjected to numerous and diverse conceptualizations. However, most definitions agree that:

- Human communication is a process of transmission of ideas through feelings and behavior from one person to another.
- Communication is persuasive and seeks to obtain desirable response to what is being transmitted.
- Communication is not linear but is a two-way and multi-way process.

Modes of Communication have evolved overtime, from oral traditions to electronics and wireless. They have expanded from local to regional, national and global, thus crossing all the physical barriers. There are three main divisions of communication modes: Non-verbal communication is thorough silence, gestures, tactile, olfactory and space-time cues. Verbal communication comprising of spoken word is through both interpersonal and electronic channels. Written communication

is through Print media, electronic media and wireless and online channels.

Three types of channels are used for the above three modes of communication: Interpersonal, Non-verbal, and Mass Media both electronic and wireless.

In interpersonal, there can be one on one, and small group communication like in group meetings, seminars and teaching classes. Both verbal and non-verbal channels are used. Sometimes in group meetings supportive written communication may be used such as flip charts, posters and brochures etc. In impersonal interpersonal mode the mass audience is the communication focus such as audience in political rallies. Body language, space and time cues are important when non-verbal cues are used in interpersonal communication. Thus the oral traditions of interpersonal through various modes and the oral traditions that we label now as traditional media or popular media are the folklores and performing arts; are the earliest form of human communications through ages.

The earliest communication scenario thought of communication as linear activity. This was a simplistic presentation of human communication. Sender sends the message through a channel to the receiver. But an interaction and processural perspective of communication evolved through research in theory and practice.

It evolved that communication activity is a process. The essential elements are: there is interaction so there is sender/s and receiver/s within a context. There is a message to be conveyed through a channel. The objective of the interaction is to have intended or unintended effects on receivers (targeted audience), to assess the effectiveness, their should be loops of feedback between the sender and receiver.

In the process of transmission, certain distortions get added which are not part of the message sent by the source. This they called NOISE. There is *Channel noise* that suggests interference with the transmission of the message. Channel noise has various connotations. In media channels, it could be identified with the state of technology, operation of technology, physical (through purchasing power), and social

access to these channels; and people's actual exposure to these messages. In interpersonal communication, channel noise may be any distraction or distortion of message between the source and the receiver.

Semantic Noise occurs when message is misunderstood because of lack of understanding of communicator's frame of reference. The receiver does not ascribe the same meaning to the message as intended by the communicator. Or the receiver does not understand the message because the communicator may use difficult words and unknown terminology.

In case the sender is not satisfied with the passive reception of the message irrespective of such passivity from mass media or interpersonal channels. He/she wants more control on communication — i.e. whether the message has the intended effect or not. The concept of linear feedback is added. Further, control can be achieved if the sender knows receivers' reactions to the messages. Thus it is necessary for the receiver to give feedback to the sender and certain cues about the message. This helps the sender to maintain control over the intended effects and adjust future messages.

The need for communication channels, messages and audience for the focused issues varied and these developed accordingly over the time periods. The communication policies related to these issues are formed to organize the communication scenario effectively.

Taking a Communication Perspective

The propensity to differentiate Communication from NOT Communication follows one of Aristotle's laws of identity. In contemporary thought, Aristotelian heritage is expressed in the assumption that one communicates not only by speaking, reading and writing but also by sleeping, eating, running, etc. There is little difficulty in identifying a particular instance of social action as *Communication.* The problem arises in specifying what human actions are *not communications.* It is impossible to identify a set of "critical attributes" to differentiate between what is communication and what is not communication. Any form of social action can be shown to be communication.

Narula & Pearce (1986) argue that communication is better understood as a perspective or context from which any act may be examined or understood. The assumption is that any action has a message value. One cannot, *NOT COMMUNICATE.* Whatever one does or does not do can be looked at from a communication perspective.

From a communication perspective, the human actions are seen as the process by which people collectively maintain social realities. Human beings simultaneously live in a symbolic universe (social reality) and are engaged in sequences of interactions with their environments and with other people. They actively strive to create coherent stories drawing from the "resources" of their social reality and from the practices in which they are engaged with others.

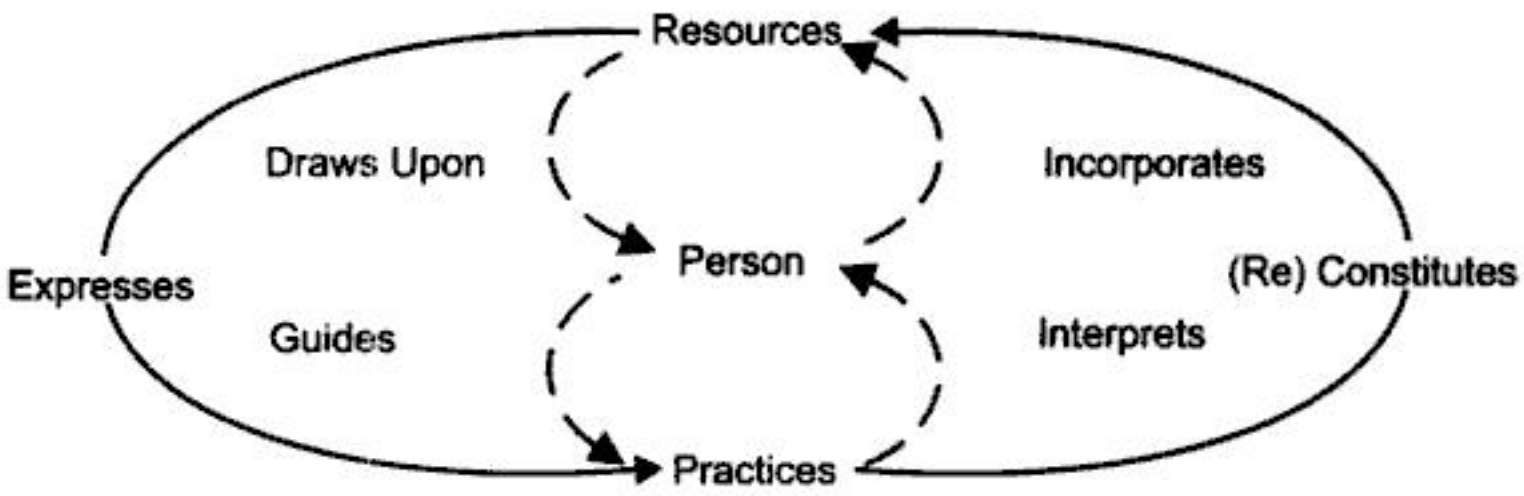


Fig. 1. Communication Perspective

Implications are that the 'communication perspective' facilitates interpretative and critical analysis. The result of this analysis is that meanings of actions, both of one's own and that of others, are made transparent and increase the possibility of communication. Thus from the point of theory, research and practice, communication - whether inter-personal or mass media always has a context in which it is presented, received, reacted to and acted upon. The contexts could be cultural, development, international, and technological. Thus utilization or effectiveness of communication is placed in contexts and is therefore context specific.

In these specific contexts we present seven perspectives (in following sections) from which human communications is practiced, interpreted and analyzed. These are Basic Communications, Development Communications, Information

Communication Technology (ICT), International Communication and Globalization, Intercultural Communication, Communication Management, and Communication Research. These perspectives do overlap and all these perspectives are intertwined as *a Communication Perspective.*

From these perspectives, many social actions that otherwise would not be defined as instances of communication, are shown to be powerful means of creating and managing social reality. For example, consider public works and legislation; from a communication perspective, both powerfully construct the social realities of the masses and the government itself.

Social constructionist perspective on communication treats actions as real, pivotal events rather than simply as transitory states of or between pre-existing entities. That is, the events and objects of the social world exist because of patterns of actions that have accrued previously, and actions are being performed now to bring them into being. Secondly, social constructionists think of communication in terms of interactive patterns and not atomistic units.

Communication planning through interactive patterns is an integral part of a holistic communication perspective. Communication planning is necessary to make (varied perspectives) action oriented. Communication planning involves, communication strategies, media planning (channel planning) and resource management culminating in communication policies.

PART 1

COMMUNICATION MODELS

A MODEL is presentation of the real phenomenon in abstract terms that can be applied in different forms at different times. Communication is an extremely complex process that becomes more complex with ever-changing communication phenomenon. Complexity and constant change in communication process makes it imperative that it is presented in simple and generalized way to explain and understand the structure and functions of communications. Communication Models present this simplification.

1

BASIC COMMUNICATION MODELS

Classification of Communication Models

The format of communication models depends on how we define and understand the process of communications and how these are applicable to different forms of communications. Communication Models are classified in three categories: stages, types, and forms of models. There have been four stages in the development of Communication Models: *Action, Interaction, Transaction and Convergence.* There are two types of communication models: *Linear and Non-Linear.* These can be presented in various forms such as *Symbolic Model, Physical Models, Mental Models, Verbal Models, Iconic Models, Analog Models and Mathematical Models.*

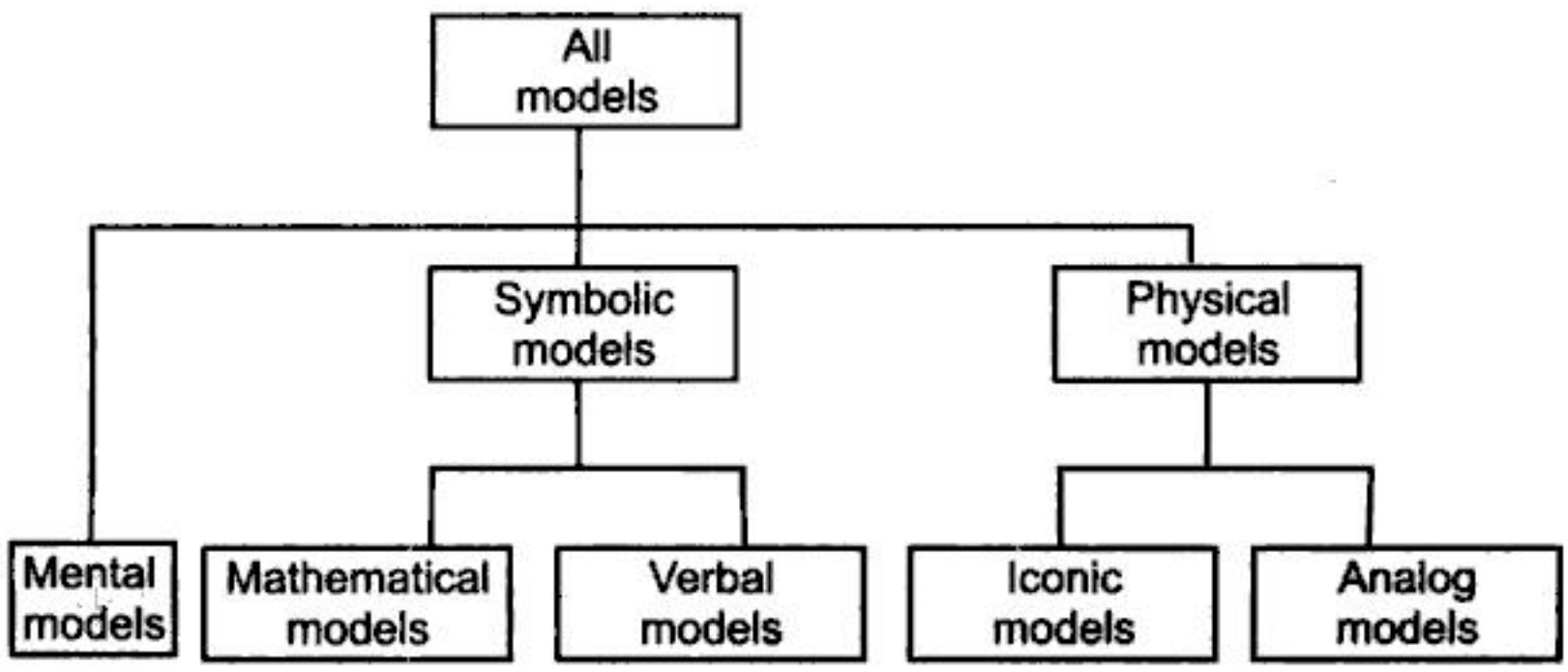


Fig. 1.1. Types of Communication Models

This presents taxonomy of models. In communication we are concerned with Symbolic models that comprise of Verbal models and Mathematical models. Physical models comprises of Iconic and Analog models. Verbal model is simply the

theory stated in words. Verbal models are useful in terms of stating hypothesis or presenting results of a study. Verbal models could be SMCR models of communication process, SMCRE model of David Berlo and Gerbner's general model of communication.

Graphic models present schematically what verbal models present with words. Graphic models of communications are : Gerbner's general Model of communications, Westley and Mclean's ABC mass communication Model, Defleurs expansion of Shannon and Weavers Model and Vora's Model for diffusing concepts. These models are discussed in later section.

Iconic models are photographs, sculptures, and paintings of person, objects and scenes. Analog models bear a defined structural relationship to the subject they represent but do not look like them. The computer may be described as an analog of the human brain.

Mathematical models are not frequently encountered in communication field except for graph theory in the analysis of communication networks and the statistical concepts of information processing. Communication theories generally have not been expressed in mathematical symbols.

Communication system comprises of two general models: Media systems and Oral systems. In media systems, the information flow is activated through professional communicators for transmission through media channels such as print, radio, television, film, video, telecommunications etc. The messages are descriptive and impersonal. In the oral systems, the messages are point to point emanated from sources authorized to speak by social hierarchy. Messages are prescriptive and they are transmitted through oral channels to highly differentiated audience. Each primary group completes the diffusion pattern by acting as a relay channel of communication within and between groups. Interpersonal channels can be personal when the communication is between or among the individuals. The direction of change is from oral to media systems in all societies. But at the same time they coexist and are supportive of each other.

Linear and Non-linear Models of Communications. This is second classification of models. The media system and

oral system models are classified into Linear and Non-linear Communication Models.

Linear Model is unidirectional model that portrays the message flow from speaker to audience with or without effect. These models could be both vertical and horizontal. In Non-linear models the message flow is bi-directional or multidirectional. These models are circular and convergence models.

Most of the earlier models of communication in 40s and 50s were linear models. They are foundation models and suggested new, useful and significant concepts, which were later, developed into non-linear, interaction, transaction and convergence models.

The linear communication models were useful for, and designed for experiments that assumed one-way causality for the study of propaganda and mass persuasion. These models described a simple communication act and not the process. Although Berlo in 60s defined communication in terms of communication process but in his subsequent research he did not pursue this idea. In fact Berlo (1977) acknowledged that S-M-C-R was not intended as a communication model but it was developed as an audio-visual aid to develop recall of the components of the communication relationships.

There are limitations of the linear models. Kincaid (1979) pointed seven biases of linear models for human communications:

- The linear models give a one-way-act usually vertical, and not cyclical-two-way process overtime.
- A source biased based dependency rather than on the relationship of those who communicate and interdependency.
- A tendency to focus on the objects of communication as if they existed in vacuum, and isolated from their context.
- A tendency to focus on the messages *per se* at the expense of silence, punctuation, and timings of the messages.

- A tendency to consider the primary function of communication to be persuasion rather than mutual understanding, agreement and collective action.
- A tendency to concentrate on psychological effects of communication on separate individuals rather than the social effects and relationships among the individuals.
- A belief in one-way mechanistic causation rather than mutual causation, which characterize human information systems that are fundamentally cybernetic.

Freire (1973) suggested that these seven biases are interrelated and cumulative, each tend to support the other and tend to create a coherent image of the communication process in spite of the limitations and problems it produces.

The ***Non-linear Models*** follow the cybernetic principle. The four most important elements of cybernetic explanation are the concept of information, feedback, networks and purpose. The analytical concepts of interaction, self-generation, mutual exchange and sharing explain the human communication in non-linear models of communication.

Deutch Karl (1968, p. 390) advocated that human systems are not connected and coordinated by mechanical means or force of matter and energy but rather by exchange of information. The most important for information sharing is the communication network circuits, by which individuals within the system are interconnected. A circuit is a circular loop with two-way exchange of information that is a prerequisite for feedback. Feedback produces action in response to input of information and through its reactions modify its subsequent behavior.

Capra (1975, pp. 286, 296) suggests a '***Bootstrap Model'.*** It suggests that process of communication is self-generating by mutual sharing and exchange of information. According to this model, the universe is a dynamic web of interrelated events. Mutual interrelation determines the structure of the web. None of the property of any part of the web is fundamental. They all follow from overall consistency.

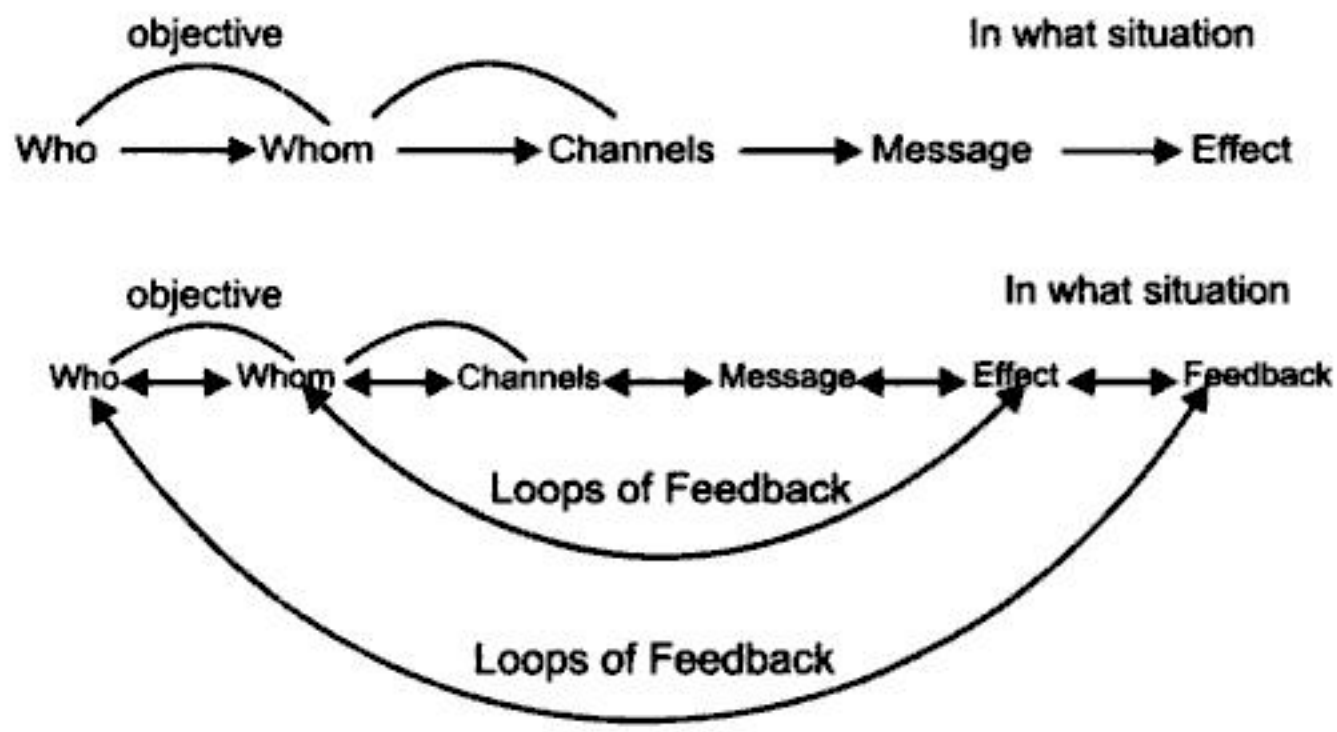


Fig. 1.2. Linear and Non-linear Models of Communication

The third classification of communications model is: Action Model, Interaction Model, Transaction Model and Convergence Model. Action, interaction, transaction and convergence concepts developed these types of communication Models. They were rather the developmental stages of communication models.

The Action Models are sender-oriented. They emphasize how a sender must construct a message to secure a desired result. How must the sender act, or speak in order to transmit his message and persuade his listeners.

Action models may work with media channels but they do not work well with interpersonal channels. From the action model point, the miscommunication may come from two perspectives. One, the source did not structure the message correctly for transmission. Two, the listeners did not correctly listen to the message or the listeners applied their own meaning to the message.

The action model is implicit model for both listening as well speaking. Listening is the act of receiving the message, and it is acting upon the message. People who operate from action model presume that listening just happens and it does not require the active participation of the people. Listening skills need not be developed and people are natural effective listeners. To them, listening is unrelated to the source. These misassumptions make the mass mediated messages ineffective at times. The early models (1.3 to 1.10) were action models.

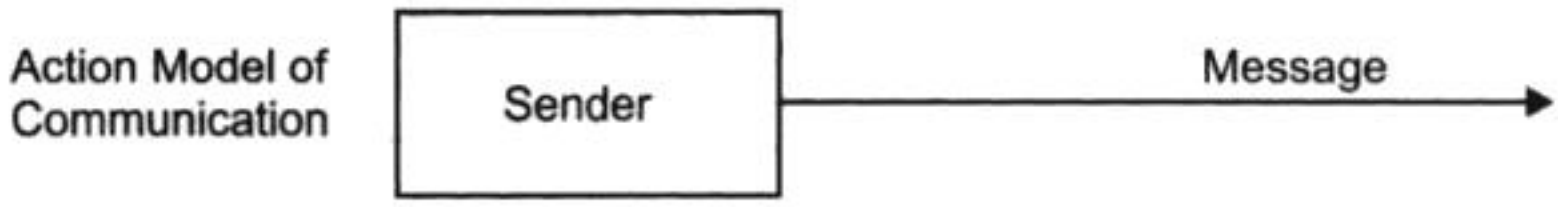


Fig. 1.3. Action Model of Communication

Interaction Models focused on interaction and relatedness between the sender and receiver. The concern was the effect of the message on both senders and receivers. The communication theorists and researchers were not satisfied with the passive reception of the message. They wanted more control on communication i.e. whether the message has the intended effect or not. They added the concept of linear feedback. Further, control can be achieved if the sender knows receivers' reactions to the messages. Thus it is necessary for the receiver to give feedback to the sender and certain cues about the message. This helps the sender to maintain control over the intended effects and adjust future messages accordingly.

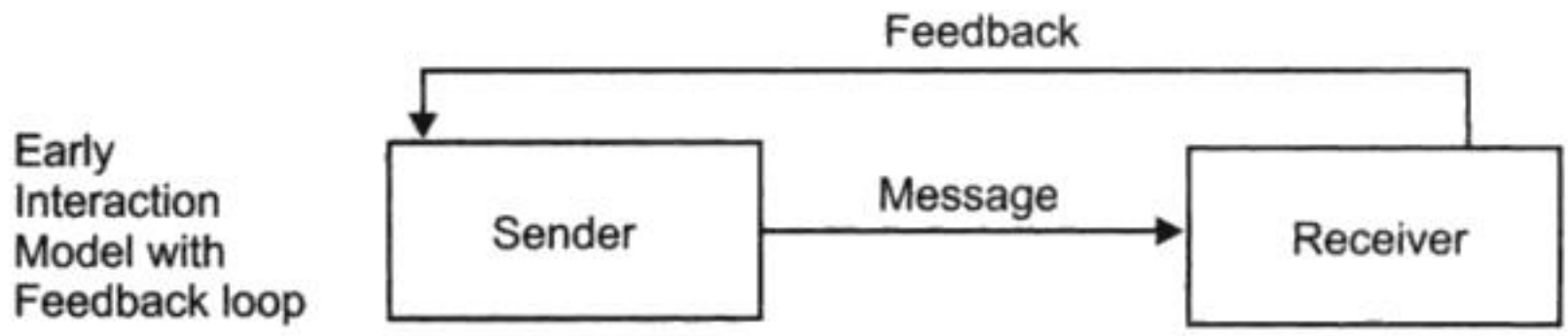


Fig. 1.4. Interaction Model of Communication

When the dimension of 'time' was added in the model, the linear qualities of the model became more apparent. It is apparent from Fig. 1.4. that the exchange of message is taking place overtime. The sender is alternatively sending a message and receiving feedback from the receiver. There is continuity of responses between the sender and the receiver. Sender has control over the intended effect of the message and adjusts future messages as desired by the sender to be effective message.

In an interaction model, *listening* becomes a process of listening, receiving, decoding, interpreting and acting upon messages. When the receiver acts upon the message; that behavior is seen as *feedback* and is seen as *response* to the sender's message.

Mother tells the child, 'Tara, please clean your book bag'. She comes after a few minutes and finds Tara cleaning the

study desk including the book bag. Since the message did not have the desired behavior on child's part, mother gave another message, 'hey I only wanted you to clean your book bag'.

There was interaction listening between mother and Tara. People who listen interactionally are not essentially good listeners. They are so preoccupied with how they are going to respond to the message that they do not receive the message as intended or distort the message received. As an alternative, if Tara had given the feedback that she would like to clean the study table along with the book bag, then mother could have adjusted her second message accordingly.

The concept of information is a significant contribution in interaction approach to communication. What is *new* is informational, what is not *new* is redundancy. In communication, the relationship between information and redundancy is meaningful. Wherever there is redundancy, there is repetition of elements forming a pattern. These patterns and differences in patterns are meaningful within interaction. They are *patterns of interaction.* In communication, patterns of interaction and variations are more meaningful than the information itself.

Although information is an important concept in communication theory, but we tend to base our behavior more on variations in pattern of interactions than on the amount of information in our communications. Communications may be personal or mass mediated.

There are two limitations of Interaction Models. One, the true interaction is lacking between the sender and the receiver. Separate behaviors (action and responses) are exchanged in interaction models that alternate in sending and receiving messages. Second, interaction models lose their clarity when they are applied to the multiple message systems operating simultaneously.

Transactional Models of Communication view communication as simultaneous responses whereas linear feedback is central in the interaction models. In transaction models, while 'A' is speaking, 'B' is generating messages or feedback in many ways ... through body postures, facial

expressions, eye movements, hand gestures, spatial distance from 'A' and verbal language use.

If we attempt to diagram the flow of these messages and potential messages generated by both A&B through their specific message systems; the overlapping lines begin to merge into simultaneous interactions. That is the characteristic of transactional model.

Fig. 1.5. Transactional Model of Communication

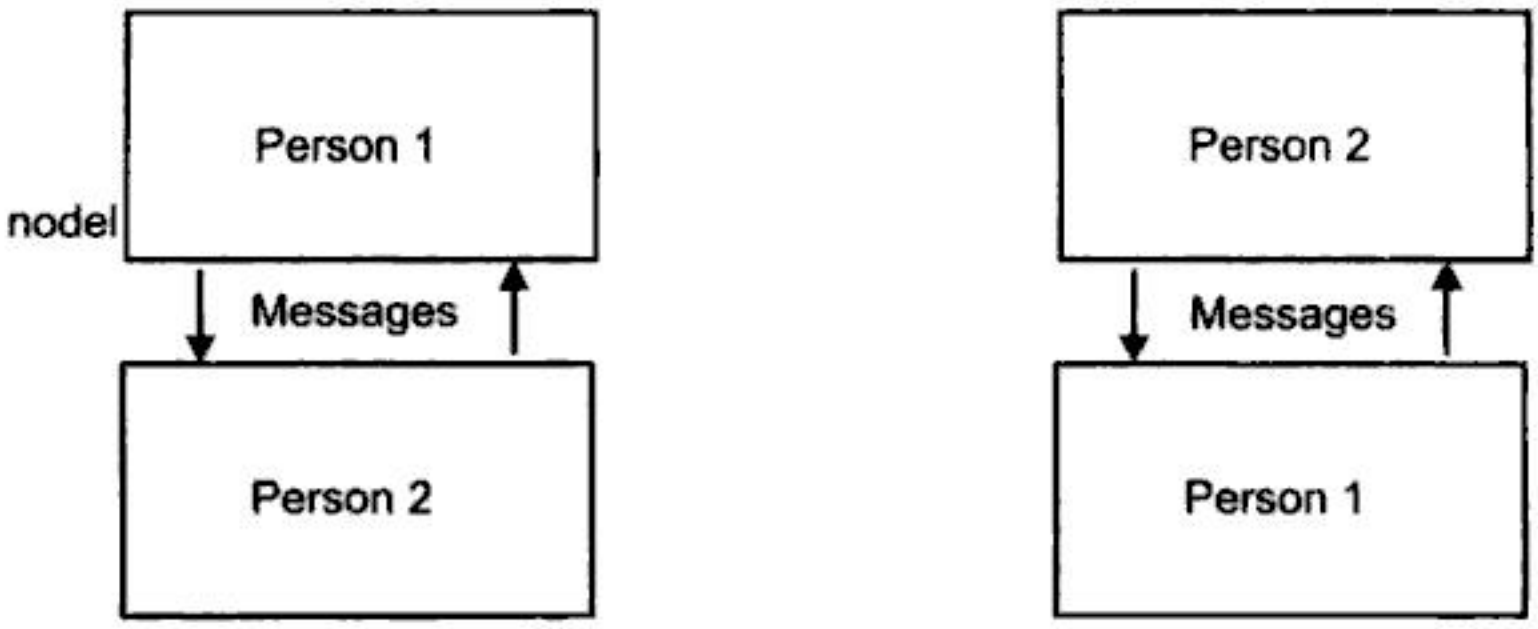


Fig. 1.6. Transactional Model of Communication

In Interaction model 'A' may be interacting with 'B' and there may be linear feedback. But in Transaction Model both A&B are participating simultaneously in the communication situation. They mutually perceive each other. Both, sender and the receiver are making adjustments to the messages exchanged within transactions. Thus both the parties are engaged in the process of creating meaning in a relationship.

In the Transaction Model, we observe the entire communication situation rather than isolating a sender or a receiver. Because we view the entire transaction, we view the progress of communication by re-examining the transaction at a later time.

In transactional models, the concern is with the *patterns of communication behavior* within the relationship formed

between the senders and the receivers; and not with *patterns of information and redundancy.* Communication can be effective by making use of these identified patterns of communication behavior. It is not necessary to know what causes such behavior patterns, what motivates them or even how they are created. As long as a pattern of behavior can be defined and observed, it can be used advantageously. Advertisers spend millions to discover patterns of product users' behavior.

Convergence Model of Communication is based on the principle of cybernetics. The four most important elements of cybernetic explanation are the concept of information, feedback, networks and purpose. The analytical concepts of interaction, self-generation, mutual exchange and information sharing and mutual understanding explain the human communication in convergence models. They are non-linear models of communication.

Kincaid (1979) developed a convergence model. According to this model, effective feedback creates convergence and ineffective feedback creates divergence. The participants converge and diverge on their relative positions overtime to reach mutual understanding of the issue. In this model *communication is reaching mutual understanding.*

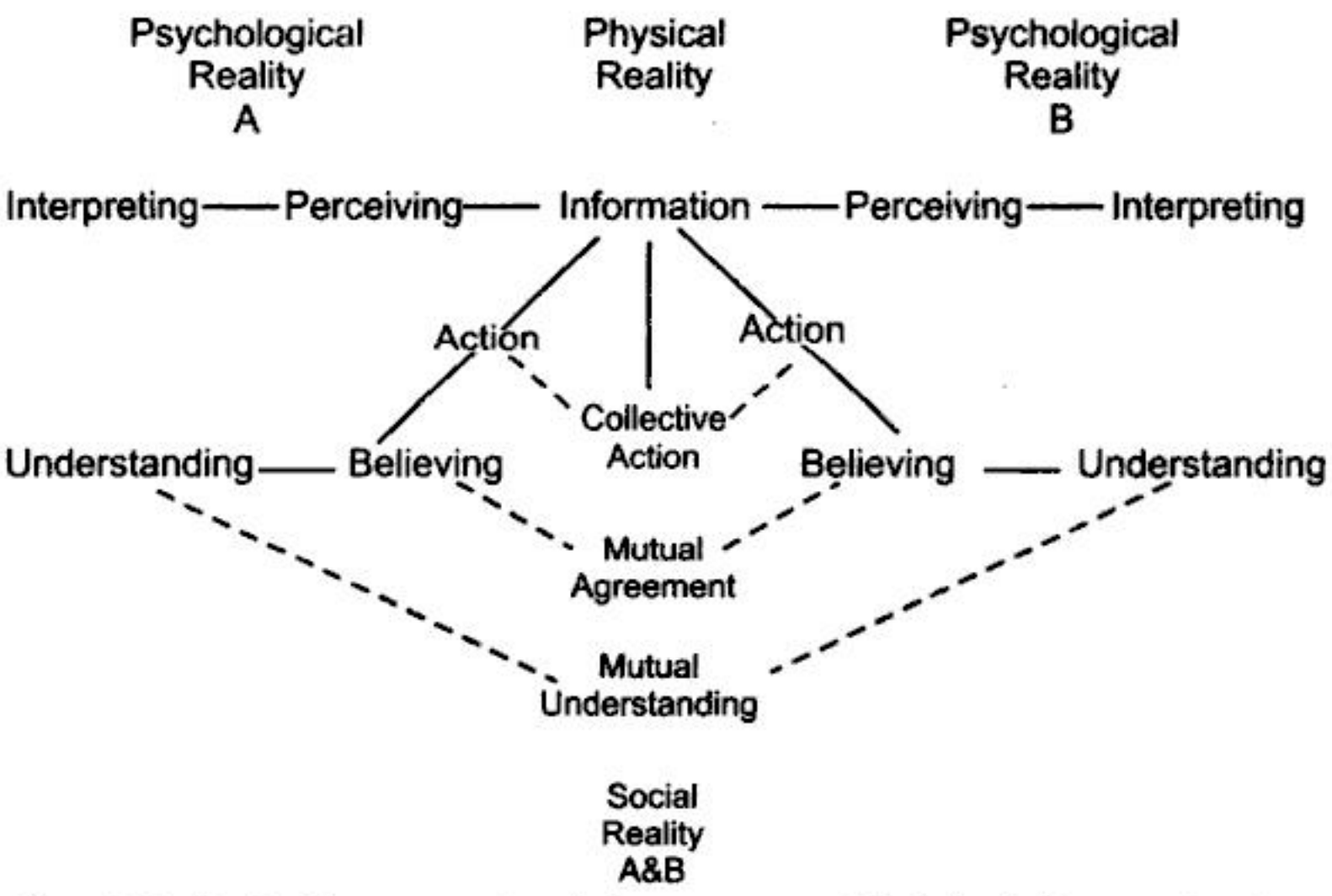


Fig. 1.7. Basic Components of Convergence Model of Communication

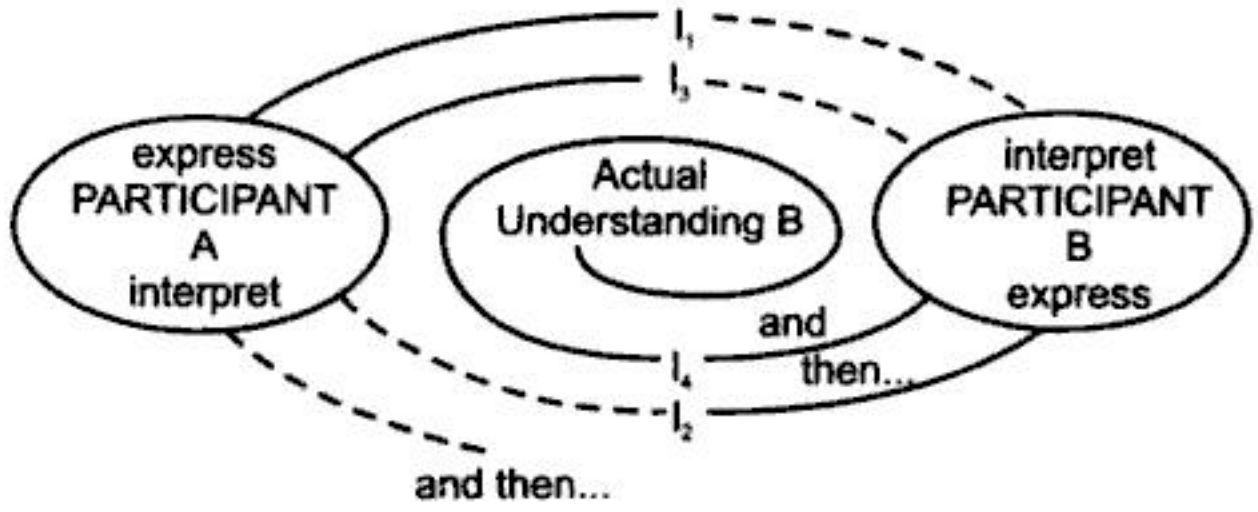


Fig. 1.8. Convergence Model of Communication

In the last six decades there has been a great model hunt for Communication Models. Empirical and Communication research influenced the evolution of these models.

The basic linear models of 40s and 50s are foundation models and suggested new, useful and significant concepts which were later developed and integrated into non-linear interaction, transaction and convergence models of 80s. These models developed the new concepts of multiple feedback loops for mutual understanding among the participants, and contextual approach in communication act and situation. Further, the emphasis has been in developing specific models rather than a Meta Communication Model. Specific models may be culture specific, system specific and situation specific.

Therefore, basic models Fig. 1.7 through Fig. 1.32 given in our text are essentially foundation models in communication discipline.

Fig. 1.9. Models of Communication: Summary

Lasswell (1948)	Gerbner (1956)	Berlo (1960)
WHO Communicating organizations, their nature and function.	1. SOMEONE (Source, communicator) 2. perceives an event 3. and reacts 4. in a situation	SOURCE Press, publishing research organizations, governments, churches and other social organizations, television, radio and publishing
says WHAT The nature of the content: informative entertaining, educative.	to make available 6. MATERIALS 7. in some form 8. and context 9. conveying content through some	MESSAGE Words, mathematical symbols, pictorial images
in which CHANNEL Print media, audiovisual media automatic data processing.	5. MEANS channels; media; physical engineering administrative and institutional facilities for distribution and control.	CHANNEL Print, electronic media
to WHOM The nature and receptivity of the audience.	1. SOMEONE (destination, audience) 2. perceives an event 3. and reacts 4. in a situation	RECEIVER General audiences, specialized audiences
and with what	of some	
EFFECT The nature and effect or response of the audience; the way in which it *affects* the communicator.	10. CONSEQUENCE Someone perceives an event and reacts in a situation through some means to make available materials in some form and context conveying content of some on sequence to.	

Fig. 1.10. Models of Communication: Summary

	Sources	Type of Model	Main Components of the Model	Definitions of Communication
1.	Claude Shannon and and Warren Weaver (1949)	Linear	source encoder message decoder destination noise feedback	All the procedures by which one mind may affect another.
2.	Charles Osgood and others (1957)	Linear	message decoder interpreter encoder message decoder	One system a source, influences another, the destination by manipulation of alternative signals which can be transmitted over the channel connecting them.
3.	Bruce Westley and Malcolm MacLean (1957), based on Newcomb (1953)	Linear	messages sources (advocacy roles) gatekeepers (channel roles receivers (behavioural system roles) feedback	Person A transmit message about an object X to person B through gatekeeper C.
4.	David Berlo (1960)	Linear	source message channel receiver feedback	A process by which a source intentionally changes the behaviour of a receiver.
5.	Wilbur Schramm (1973)	Relational	informational signs relationship among participants active receivers	A set of communication acts focussed on a set of informational signs within a particular relationship.
6.	D. Lawrence Kincaid (1979)	Conver-gence	informtion uncertainty convergence mutual understanding mutual agreement collective action networks of relationships	A process of convergence in which information is shared by participants in order to reach a mutual understanding.

Functions of Communication Models

Communication Models are visualization of the communication process. They are basics about the elements of communication, how they operate and interact.

Models may serve any or all of the four general functions. First, models organize the various elements and the process of the communication act in a meaningful and interesting way. Second, they help in discovery of new facts about communication. It generates research questions. It serves heuristic function. Third, these enable us to make predictions concerning communications i.e. what will happen under certain conditions. Fourth, models may provide the means of measuring the elements and processes involved in communication.

Frank E.X. Dance (1983) suggested that we adopt a family of communication models. Each of these models highlights some aspect of the process of communication and distorts others. Most communication theorists agreed. After 1970, few more models of communication were developed and those models of communication were not unidirectional. For detailed discussion on evolution of Models of Communication, refer to Narula (1994, pp. 45-69).

The various Communication Models that developed in the last six decades reflect on the process of communication. The revised concept of communication is based on empirical communication research and deliberations of scholars in the discipline. Key points of these revised models are:

- Communication is processural and reflexive
- Sequence of events is important
- Meaning of events is derived from their locations within an ongoing sequence
- We learn to focus on "patterns" rather than on individual messages, and on interactions rather than on movements of messages from one place to another
- Participants in the communication process contribute to the meaning of any given aspect of communication and function as 'sources' and 'receivers' as they participate.

- There is interaction between the sender and receiver through several communication networks and feedback loops.
- Contextual approach to meaning in a communication act and situation is important and mutual understanding among the participants is necessary for effective communication.

The essential elements of the process are presented in the following five versions of the Basic Communication Model:

1. Sender—message——channel——receiver
2. Sender—message——channel
3. Sender—message——channel——receiver——effects
4. Sender—message——channel——receiver——effects——feedback
5. Sender—message——channel——receiver——effects——feedback loops

Fig. 1.11. Basic Communication Model-1

In version 1 of the Basic Model, the objective of the sender is to send message through a channel to the targeted receiver. The sender's immediate concern is not receivers' reactions, comprehensibility, and intended effects e.g. communication through public meetings or presentation on TV. Here the receivers are not differentiated mass and there could be both short and long-term effect that the sender is not assessing. In version 2 of the Model, the targeted audience exists but it is their choice to attend the public meeting or switch on the TV.

In version 3 of the Model, the targeted receivers are differentiated; sender is concerned about the intended effects of his/her message. He/she is vaguely aware of the effects; but he/she has no way to assess the effects. In version 4 of the Model, the targeted receivers are differentiated, sender is concerned about the intended and unintended effects of his/her message and he/she assesses the effects through audience feedback.

In version 5 of the Model, the targeted receivers are differentiated, sender is concerned about the intended and

unintended effects of his/her message and he/she wants his/her audience to comprehend his/her message. In order to assess the effects on the audience and to facilitate comprehensibility of the message, feedback loops are necessary. Feedback loops from sender to receiver and from receiver to sender are necessary in these contexts. The receiver can choose a channel of his/her choice for feedback, which is equally accessible to him and the primary sender.

These basic Models for communications evolved overtime.

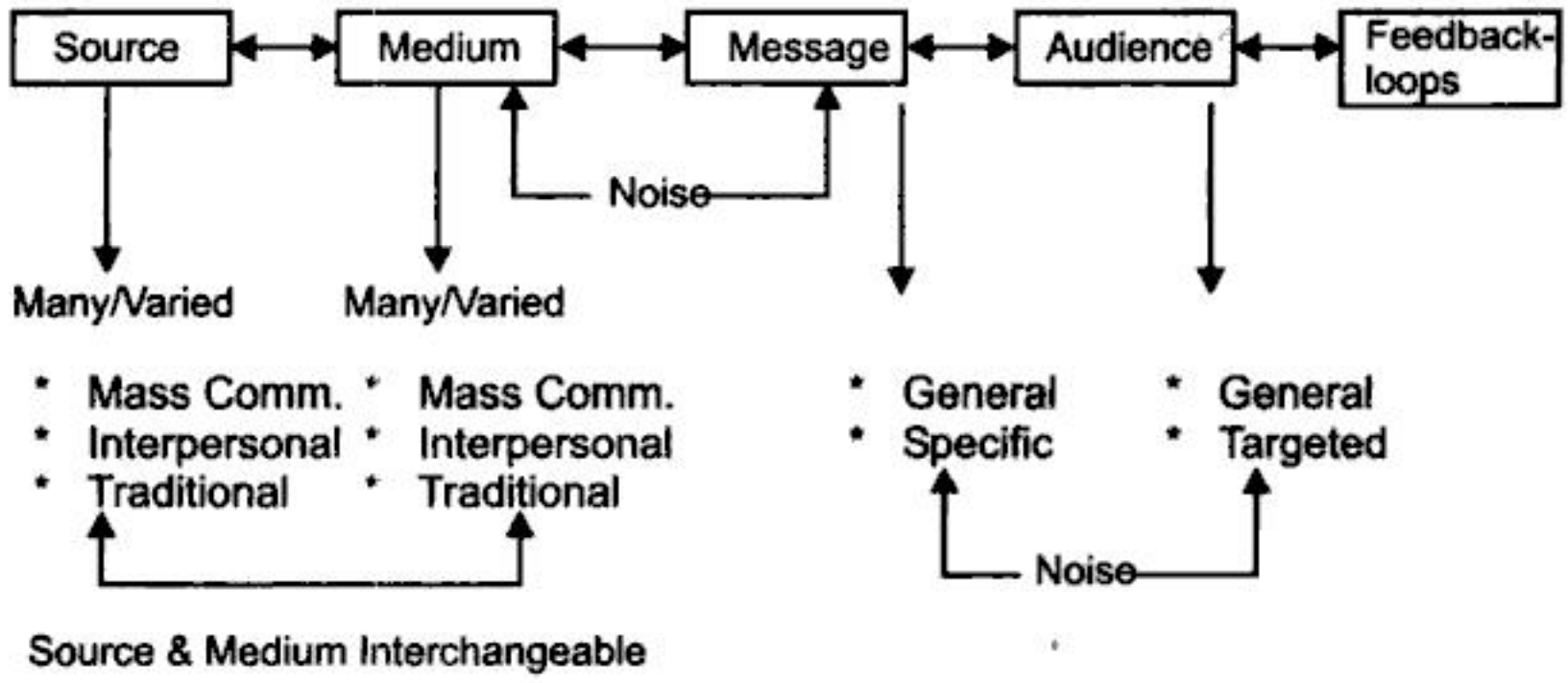


Fig. 1.12. Basic Communication Model-2

Aristotle's Model of Communication

Aristotle proposed the earliest communication model some 2300 years back. This is simple and linear. This model included five essential elements of communication: the speaker, the speech or message, the audience, the occasion and the effect. Aristotle advises the speaker on constructing a speech for different audience on different occasions and for different effects. This model is actually more applicable to public speaking than interpersonal communication.

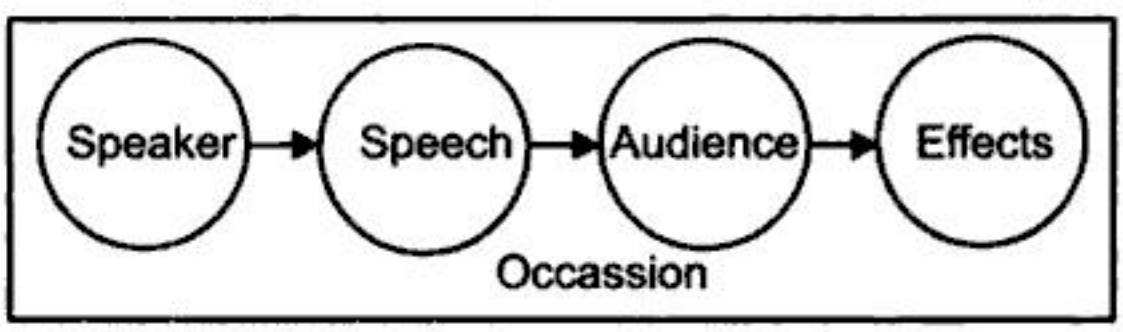


Fig. 1.13. Aristotle's Model of Communication

Lasswell Model of Communication

Lasswell proposed a communication model in 1948 that was not different from Aristotle. This model suggests the message flow in a pluralistic society with multiple audiences. The message flow is through numerous channels.

Communication Component	Research Area
Who	Control Analysis
Says What	Content Analysis
In What Channel	Media Analysis
To Whom	Audience Analysis
With What Effect	Effect Analysis

Fig 1.14. Lasswell Model of Communication

Shannon and Weaver Model of Communication

In 1949, Claude Shannon and Warner Weaver proposed a Communication Model. The speaker selects a desired message from all the possible messages. The message is send through a communication channel and changed into signals (messages). The receiver receives the signals. In the process of transmission, certain distortions get added which are not part of the message sent by the source. This they called NOISE.

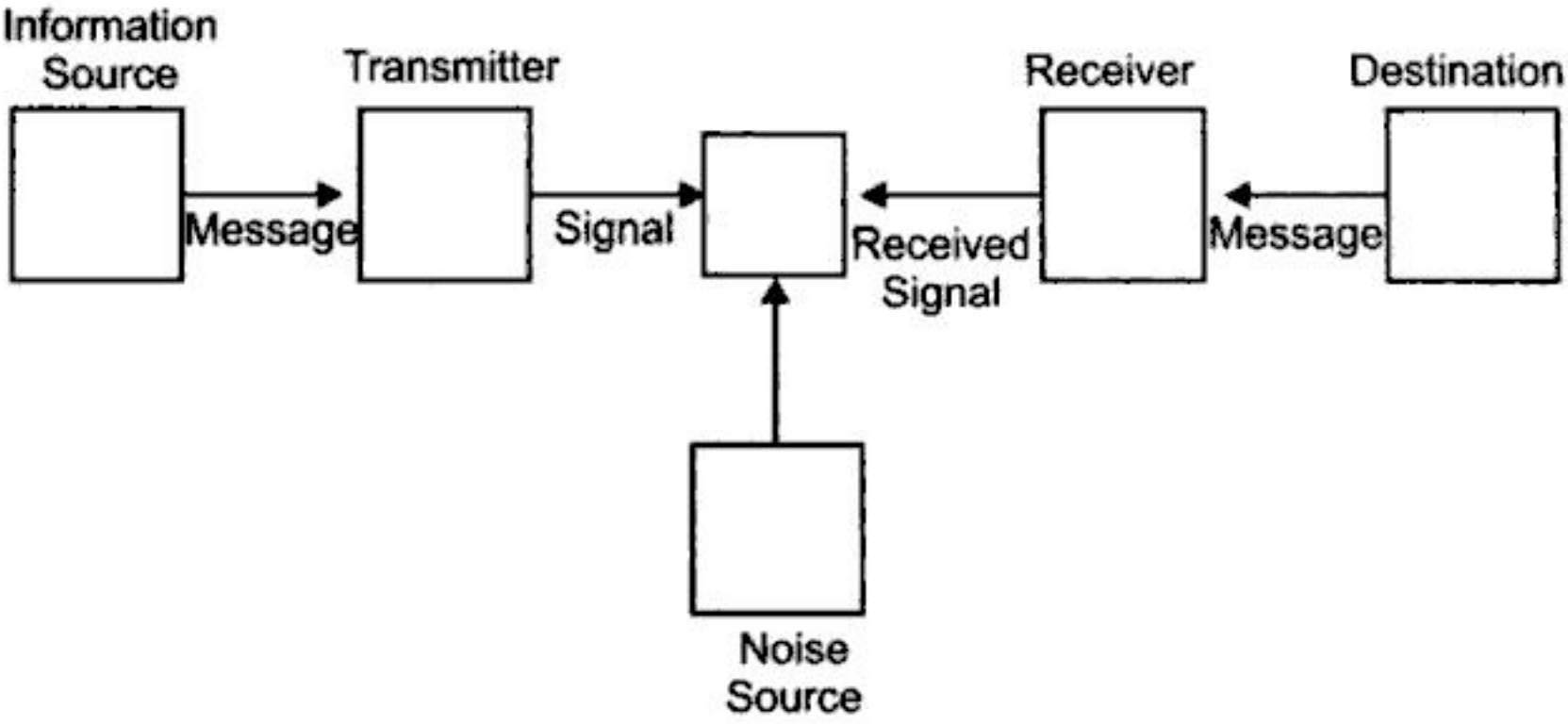


Fig. 1.15. Shannon and Weaver Model of Communication

This model led to the technical improvements in the message transmissions and it stimulated scholars from several disciplines to study communication scientifically. Their effort was towards developing a *Unified Model of Communication.* The focus of this Model was three components viz. Channel Noise, Semantic Noise, and Feedback. These three components were considered for the first time in the communication process. *Channel noise* suggested any interference with the transmission of the message. *Semantic Noise* occurs when message is misunderstood. *Feedback* is the third component to assess the 'effects' and comprehend the intended message adequately.

Narula (1994) discussing about 'Noise' i.e. distortions in communication transmission suggests that channel noise has various connotations. In media channels, it could be identified with the state of technology, operation of technology, physical (through purchasing power), and social access to these channels; and people's actual exposure to these messages. In interpersonal communication, channel noise may be any distraction or distortion of message between the source and the receiver.

Further, *Semantic Noise* occurs when message is misunderstood because of lack of understanding of communicator's frame of reference. The receiver does not ascribe the same meaning to the message as intended by the communicator. Or the receiver does not understand the message because the communicator may use difficult words and unknown terminology.

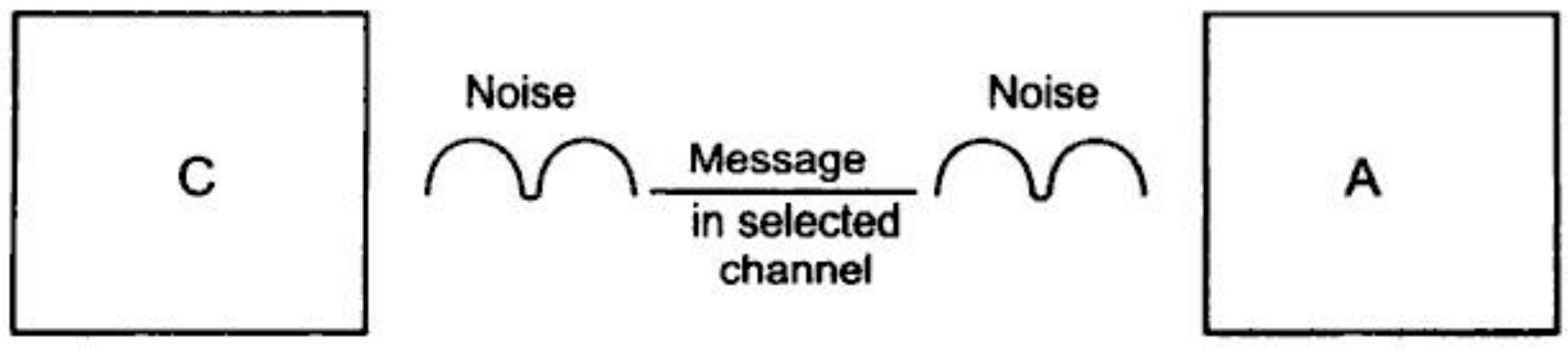


Fig. 1.16. Channel Noise

Communicator places his message in a selected channel to reach audience (A), but it is subject to noise interference.

Communicator and audience member (A) has same frame of reference so they understand the message, A1 is partially receptive, A2 is unable to understand.

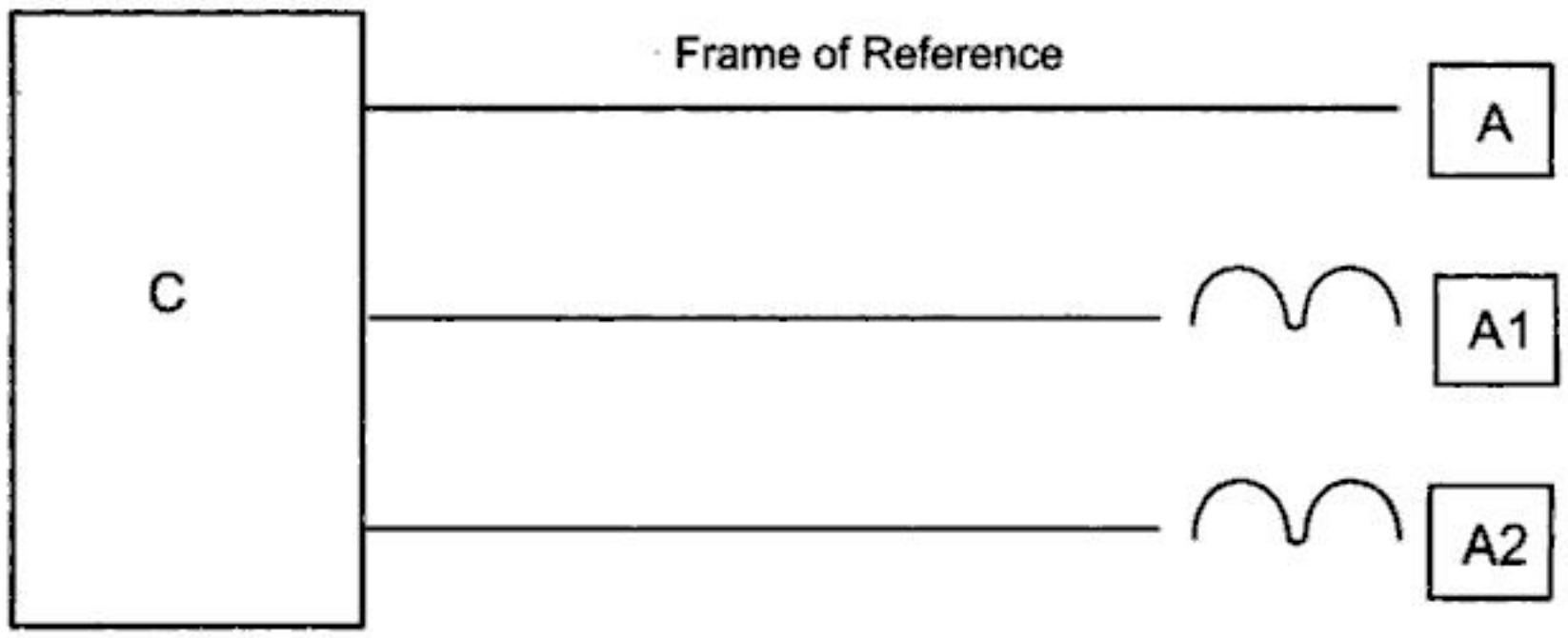


Fig. 1.17. Semantic Noise

Communicator in a channel controlled by 'E' reports source message. For instance, pro family planning messages of the government (source) is reported by professional communicators through opinion leaders to the villagers. Opinion leaders are second in line communicators to the people. The original source can pass messages through two-step communicators. Some can receive message directly if they have direct exposure to media channel, others indirectly through opinion leaders. Messages may not register at all with others who are inattentive to them.

Thus the feedback interactions occur along the communication route. But these feedback interactions are only one-way.

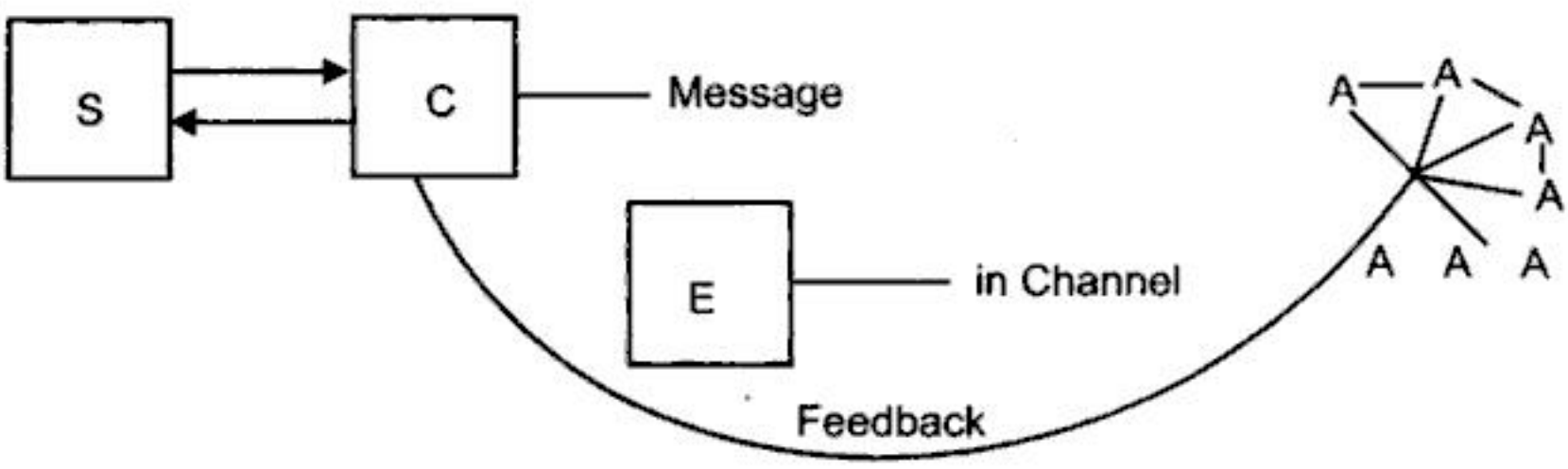


Fig. 1.18. Channel and Semantic Noise

Shannon and Weaver did discuss the semantic or pragmatic problem in communication and the channel noise in the transmission of messages. But their model failed since other human communication researchers who used this model did not consider enough about the semantic or pragmatic levels of communications. They did not pay enough attention to the channel noise. It did not register with them that feedback component is a significant component in communication process.

Principle of redundancy i.e. the repetition of the main idea of the message is used to reduce channel noise both in mass media and interpersonal communication channels. The semantic noise can be reduced if communicator adjusts his vocabulary to audience needs, interests and understanding. But the interpretation of intended meaning depends on feedback loops between the source and the receiver.

Wendell Johnsons Model of Communication

Wendell Johnsons proposed one of the most insightful models in 1951. It is a simple model explaining the complex process of communication.

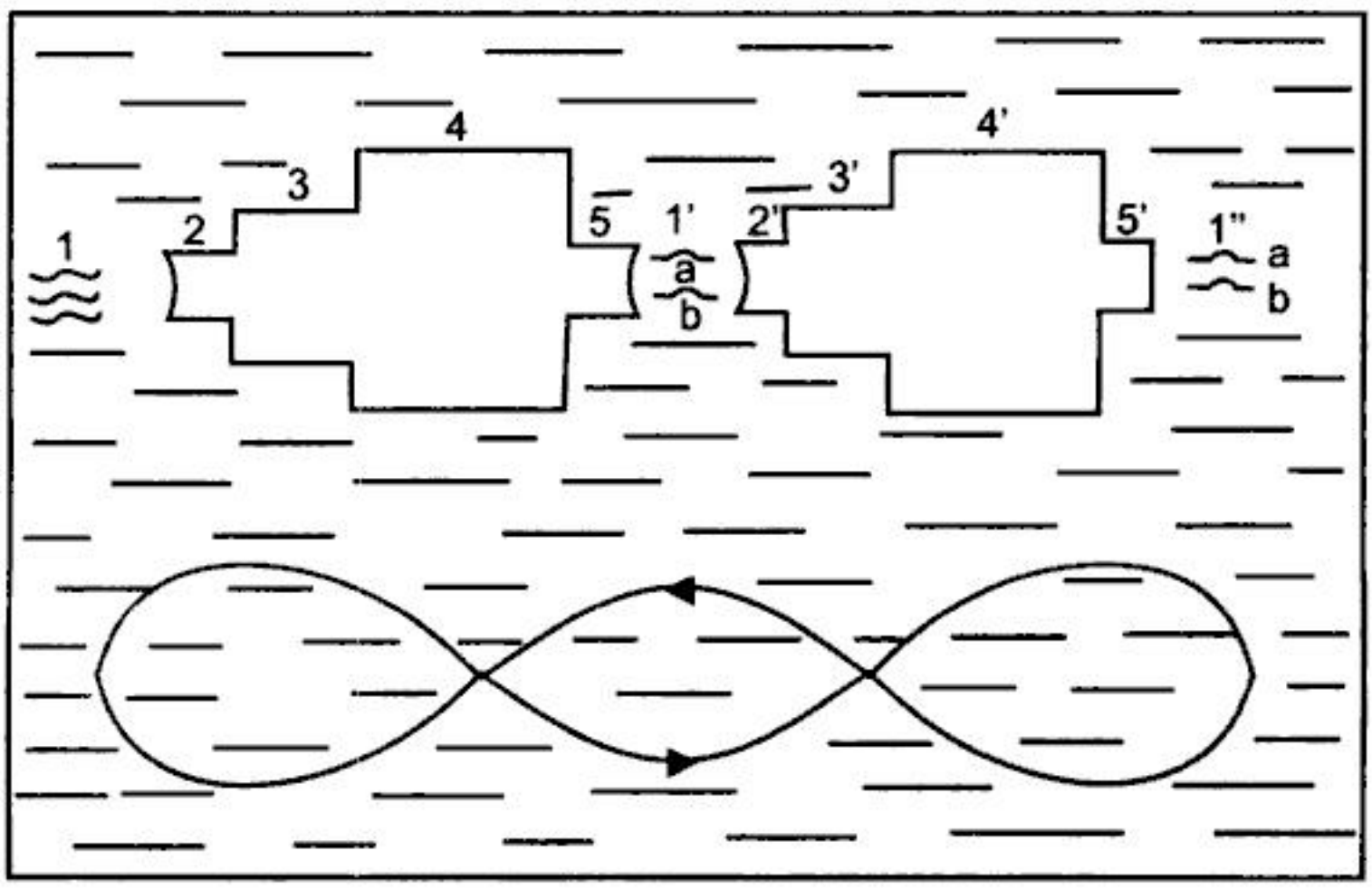


Fig. 1.19. Wendell Johnsons Model of Communication

In the figure, the surrounding rectangle indicates that communication takes place in a *context.* This context is external to both the sender and the receiver and even to the

communication process as well. The curved loop indicates that the various stages of communications are actually interrelated and interdependent.

Stage 1 in the figure denotes communication event and the actual communication process begins at this point. This event is the external stimulus to communication. Although all communication may not have reference to this event. Johnsons argues that communication make sense when it relates to the external world. Stage 1' is the external event of spoken or written words that served stimulation for the speaker.

At stage 2, the receiver is stimulated through one or more sensory channels. The opening at 2 is shown relatively small to emphasize that out of a large number of sensory stimulations, only a small part stimulates the receiver. At stage 2' the receiver is stimulated

At stage 3, the organic evaluations occur. Certain bodily changes are affected such as muscular tensions. At stage 3' there are organism evaluations.

At stage 4, the feelings that are aroused at stage 3 are translated into words in accordance with individual's unique language habits. Stage 4' feelings of receiver are translated into words.

At stage 5, the selected linguistic symbols are arranged into a pattern. Stage 5' shows the selected linguistic pattern. These symbols serve as stimulation for another receiver.

This is a continuous process. This model is not a complete explanation of the communication process *per se*. It is rather an attempt to picture some of the most essential elements, processes and relevant relationships that make up the communication act.

The major contribution of this Model is the *Interaction* and *Contextual* components in the communication models that were developed later on.

Wilbur Schramm Model of Communication

Wilbur Schramm was influential in facilitating use of linear models in 1950's and later on moved to develop relational models in 1973. Empirical and communication research influenced his models.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

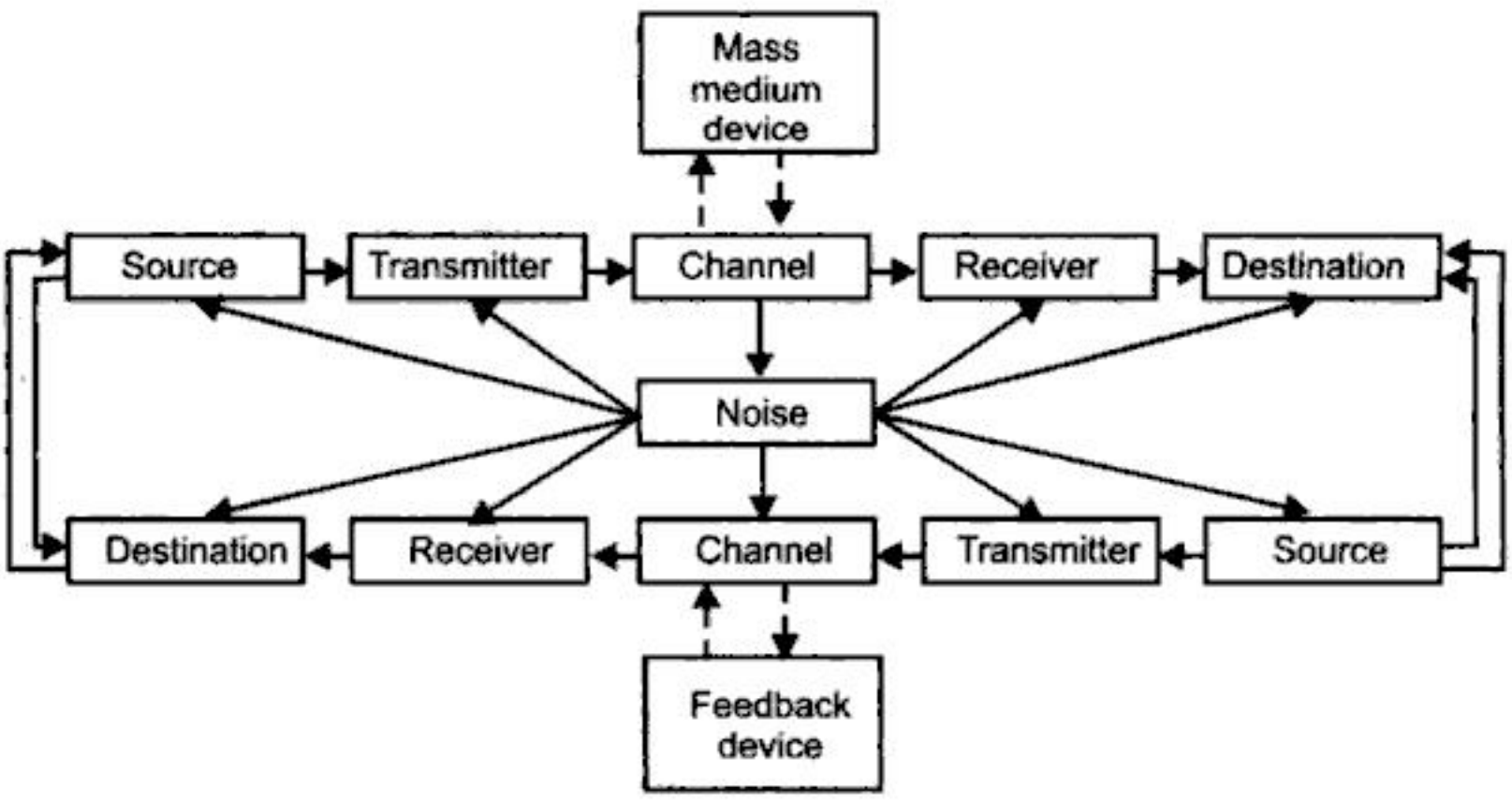


Fig. 1.25. DeFleur Model of Mass Communication System

Hiebert, Urgurait and Bohn (HUB) Model of Mass Communication

In this model, communication is perceived as a set of concentric circles much like the waves formed when a pebble is thrown in a pool. The pebble that is analogous to the communication content causes ripples that become ever widening circles until they hit the shore (audience) and bounce back (feedback).

The idea is that initial content goes through a series of actions and reactions labelled as pool of human affairs. The focus on content development was given attention for the first time.

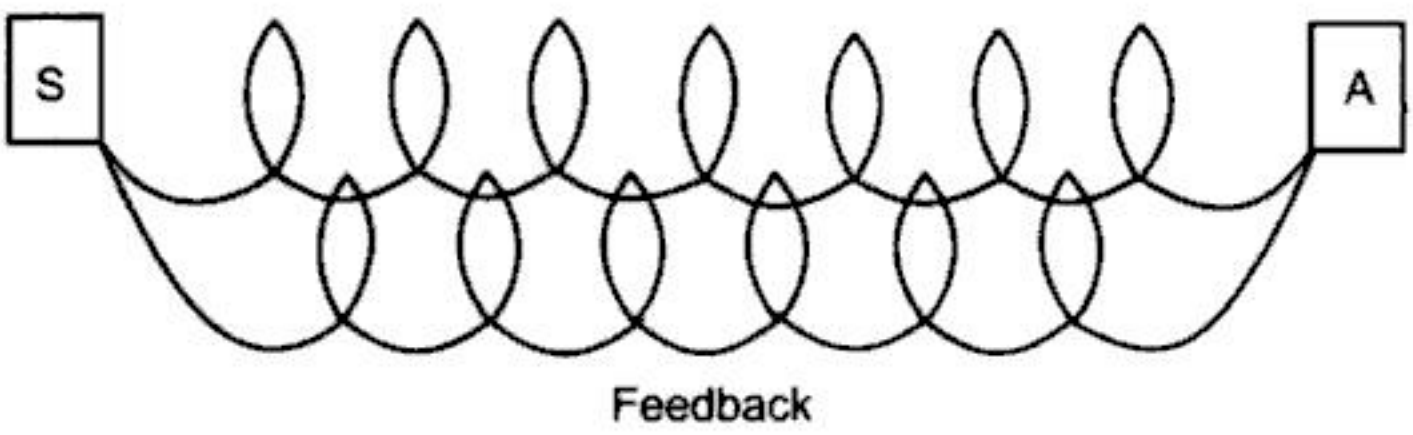


Fig. 1.26. HUB Model of Mass Communication

Vora's Model for Diffusion of Concepts

Vora's model is a complex model. It presents the concept of diffusion, knowledge, attitude change, and behavior change

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

Homophily and hetrophily are significant for effective interpersonal communication. Homophily refers to degree of similarity between the parties engaged in interpersonal communication. Hetrophily refers to differences between the parties. Research evidence is that interpersonal communication is more effective when the parties are similar in age, gender, religion, socio-eco status, educational level and even professional and political leanings. But in certain communication situations, heterogeneity of the other parties becomes a necessary condition. Consider these two instances: when experts impart training, and diffusion process of innovations. In these two instances, change is often brought when the parties involved are 'optimally hetrophilious'.

Source credibility is important point for effective communication both for interpersonal and mass media. Source is seen as possessing or lacking credibility for its messages and interactions.

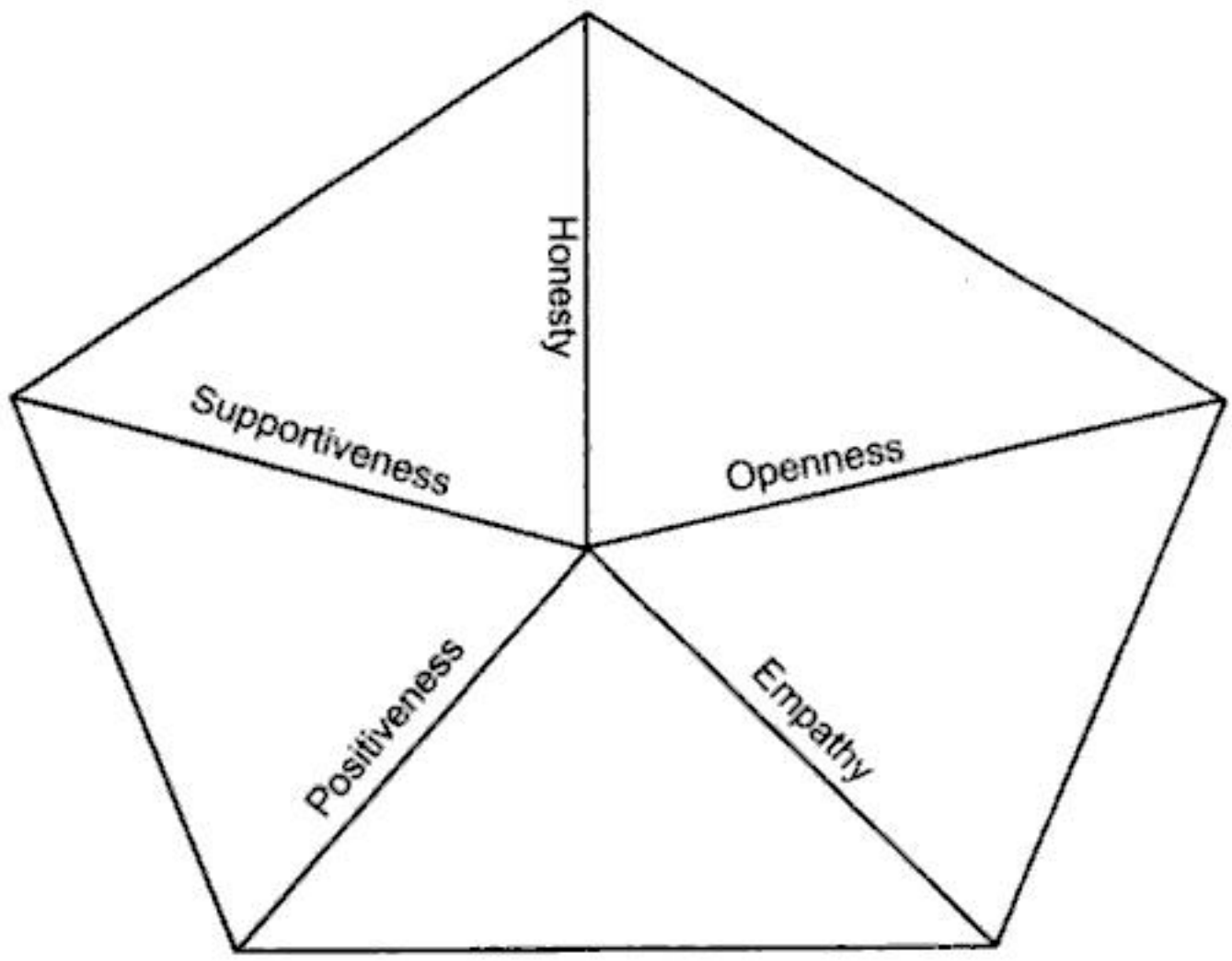


Fig. 1.29. Effective Interpersonal Communication Model

Society, Media and Audience Reciprocal Relationships

Mass media addresses the audience dependency on media information that is ubiquitous condition in modern society. It is a key variable in understanding why and when media

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

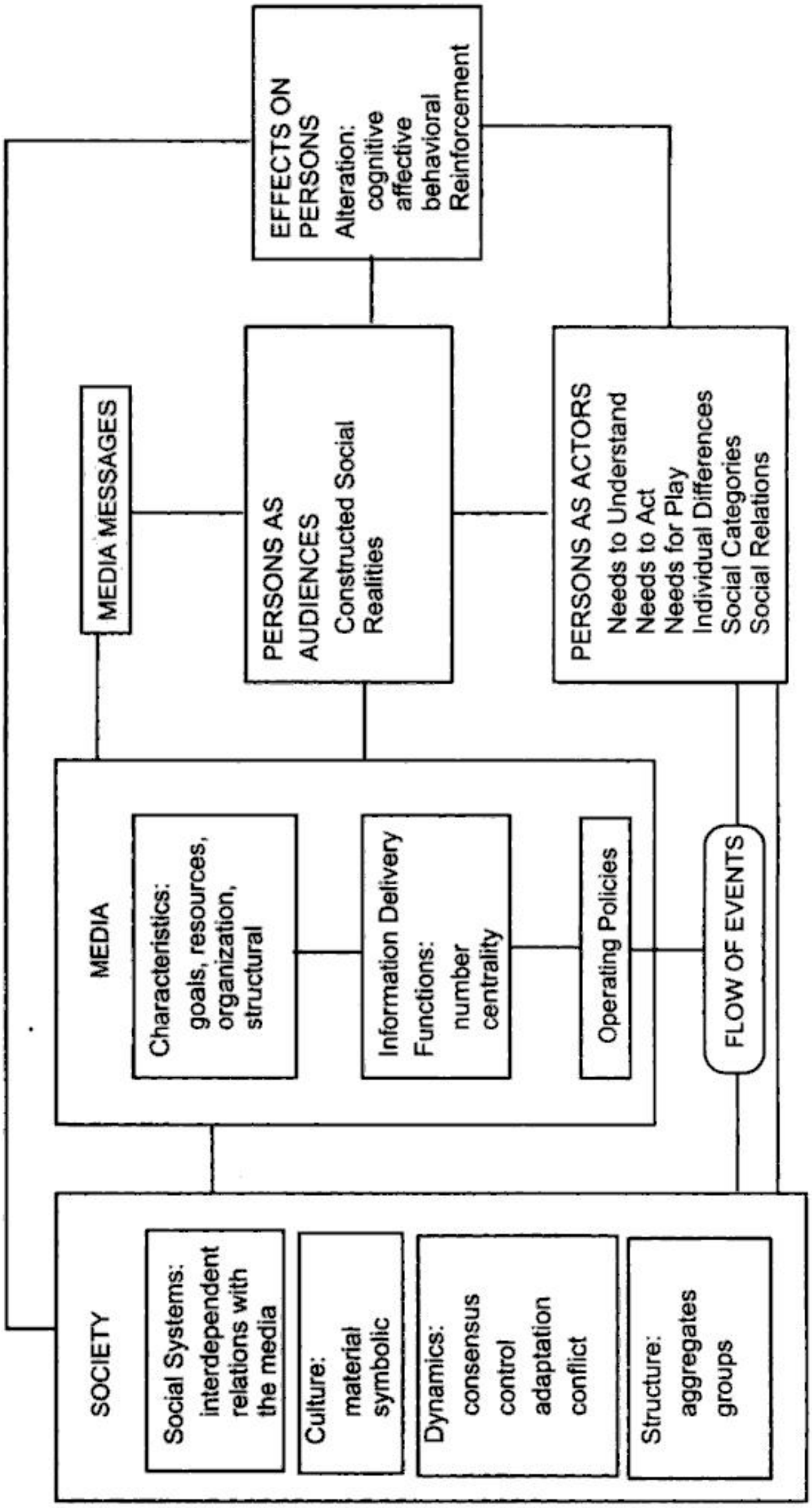


Fig. 1.31. Integrated Model of Media Effects

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

trickle down to poor from rich, and from developed countries to developing countries. But the theory did not work as assumed and rather created gap. The emphasis on mass media exposure created communication gap between the have and havenots because of limitations of media opportunities and media access. Urbanization created peripheral slum areas around urban metros and towns as rural population migrated to urban areas in search of employment opportunities and better quality of life. The efforts towards literacy were a slow process.

For detail discussion on this approach, refer to Modernization approach in Development Communication Perspective section in Part 2.

The dynamics of development are the patterns of interaction and social realities of various agents of development. Political leadership, development administration, rural and urban masses are the agents of development. The major dynamic factor for development is 'development efforts' by all the agents. Development efforts comprise of development awareness, motivation for development and participation in development.

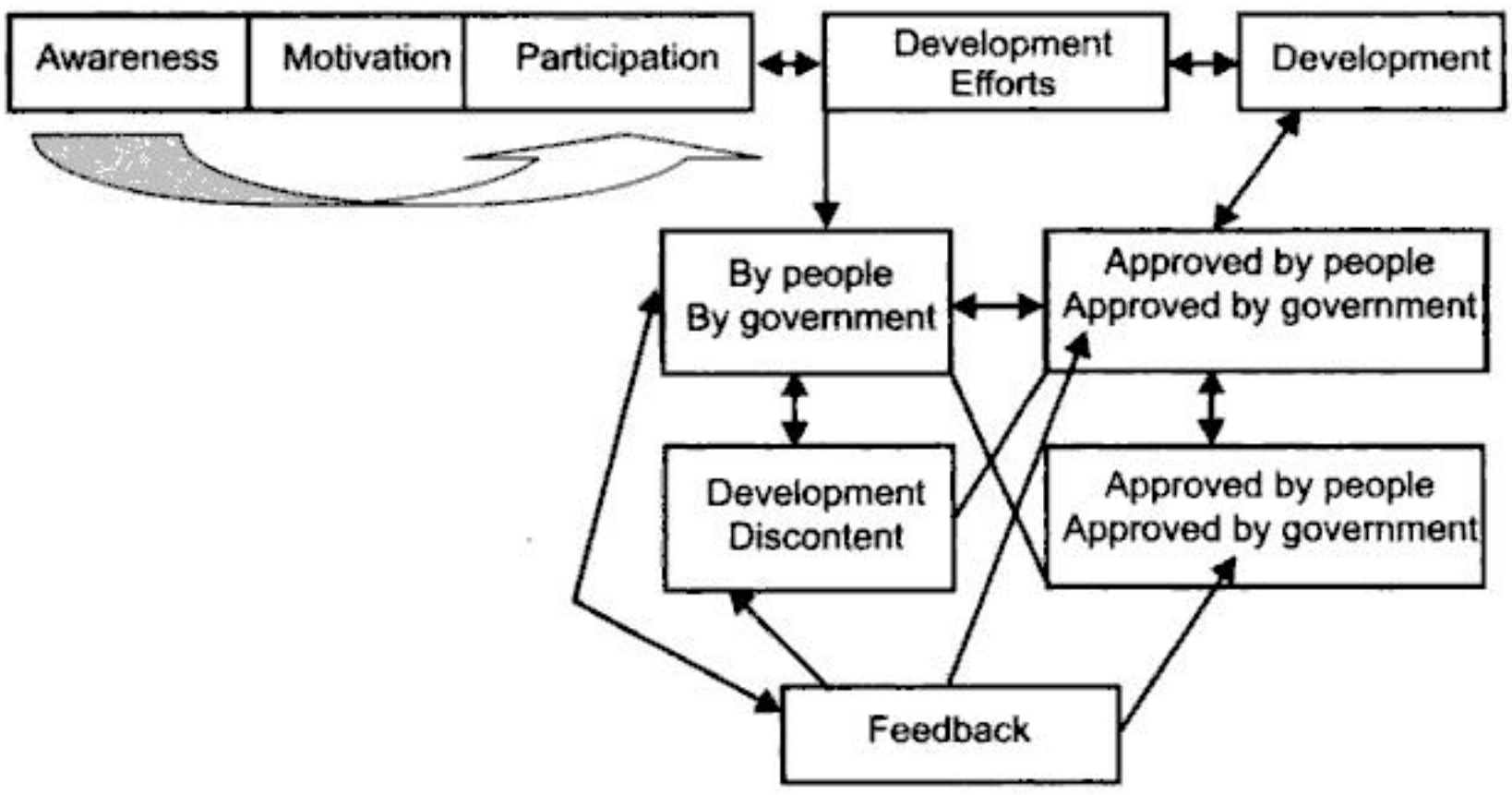


Fig. 2.2. Dynamics of Development Communication

There is relationship between development awareness, discontent, motivation and feedback linkages with participation, approval and adoption of development projects.

The analysis of six development decades suggests that development discontents in the developing countries were

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

The development awareness addresses the question of people's awareness of development programs in general and specific activities going on in the local areas or likely to be taken in future. The general awareness is identified with interest and arousal stage, whereas specific awareness is identified with participation and adoption stage. The extent of awareness as high and low depends on source, content and credibility of communication links.

Development discontent is multidimensional. The discontent could occur with the existing development and communication strategies. People get discontented when people's development demands are not met. The assumption is that development discontent activates people to participate aggressively in development.

Development motivation for participation is identified with the demands of the people made on the government or other agencies for satisfying development needs. Such motivation also stimulate people to take self or community initiative to do development. The motivational force for development may be the psychological arousal of people. Awareness, knowledge of the issues and reasons and patterns of discontentment are necessary and sufficient for motivation.

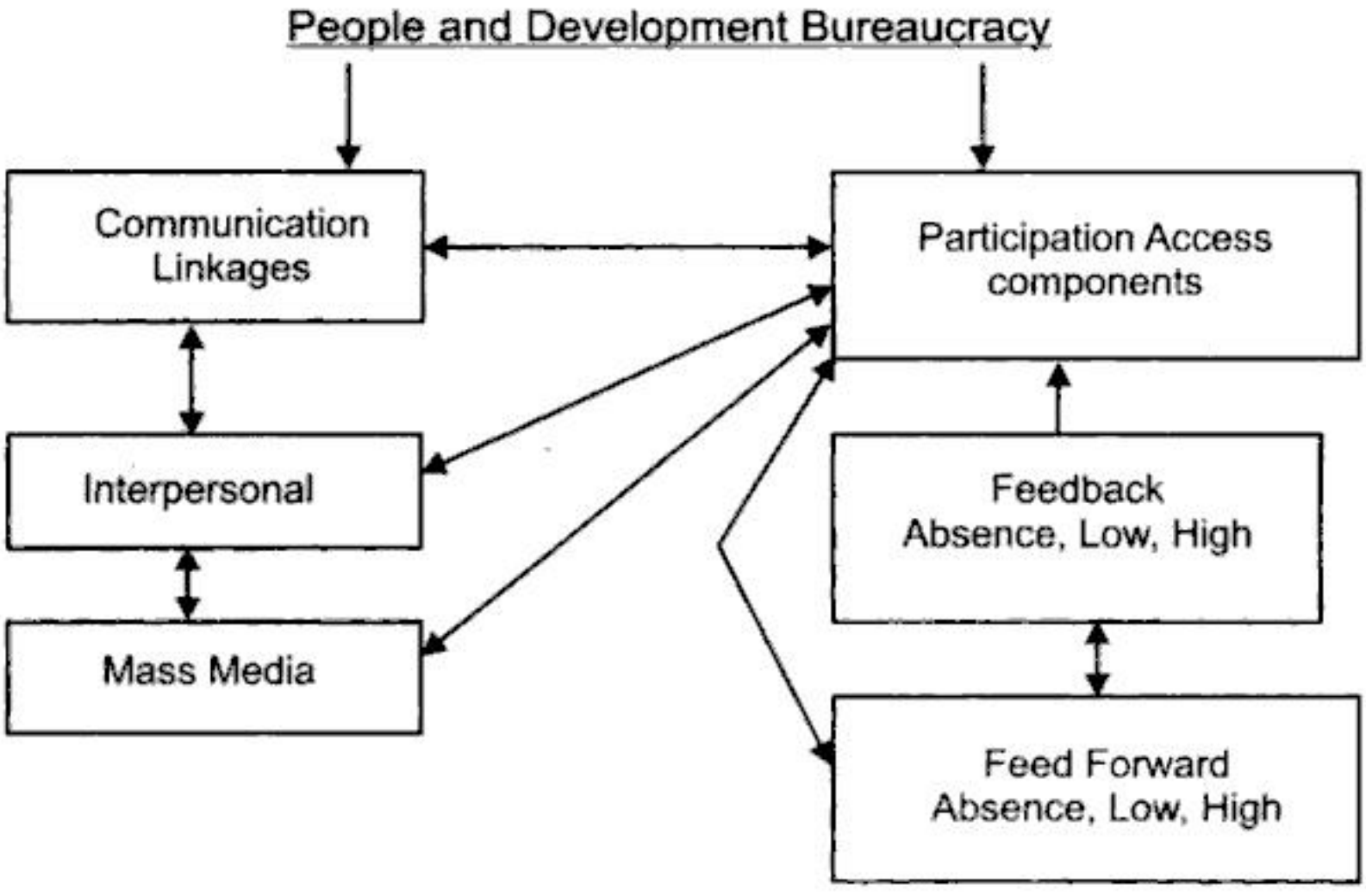


Fig. 2.7. Participatory Communication Patterns for Development

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

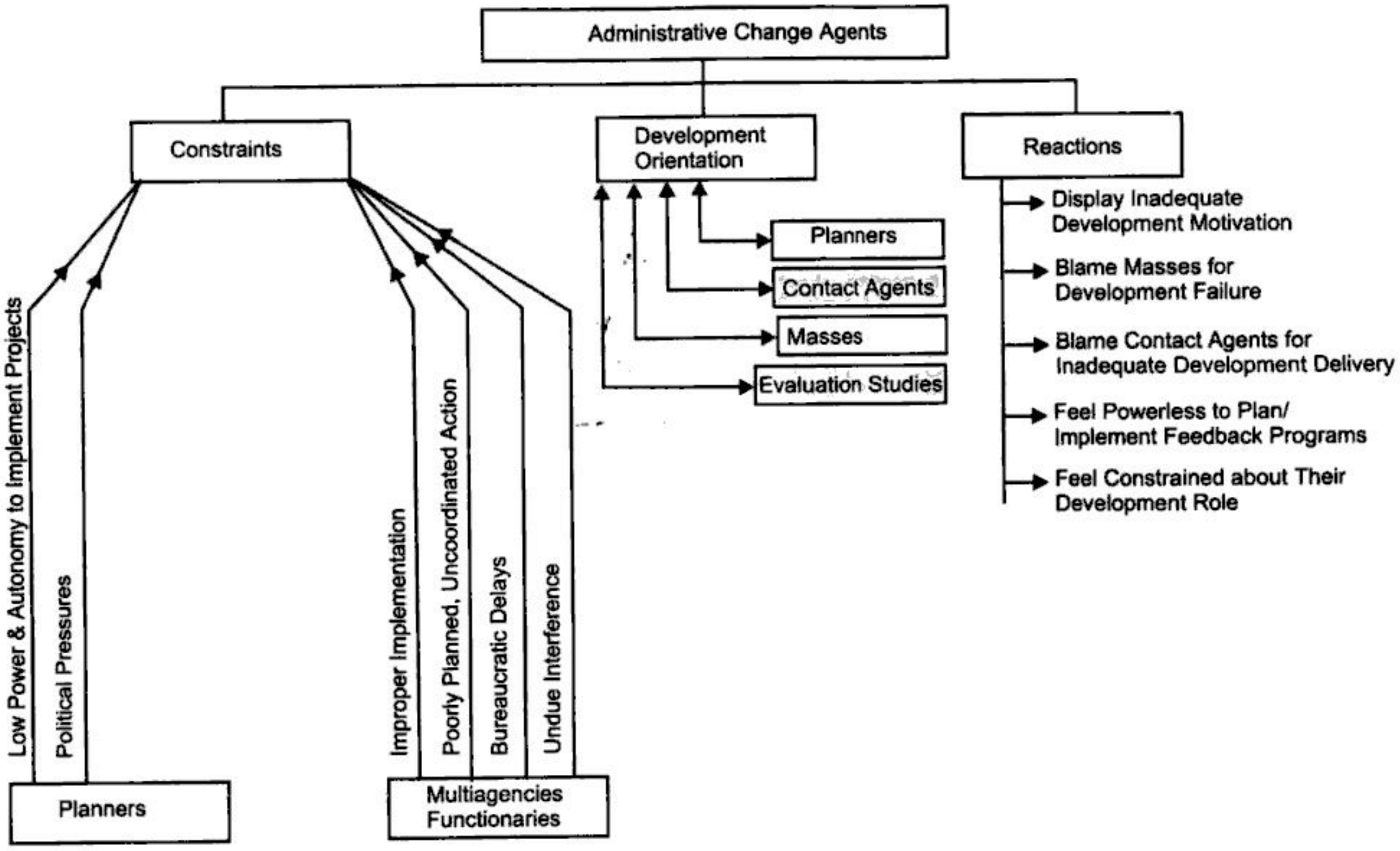


Fig. 2.11. Administrative Change Agents' Interaction with Planners

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

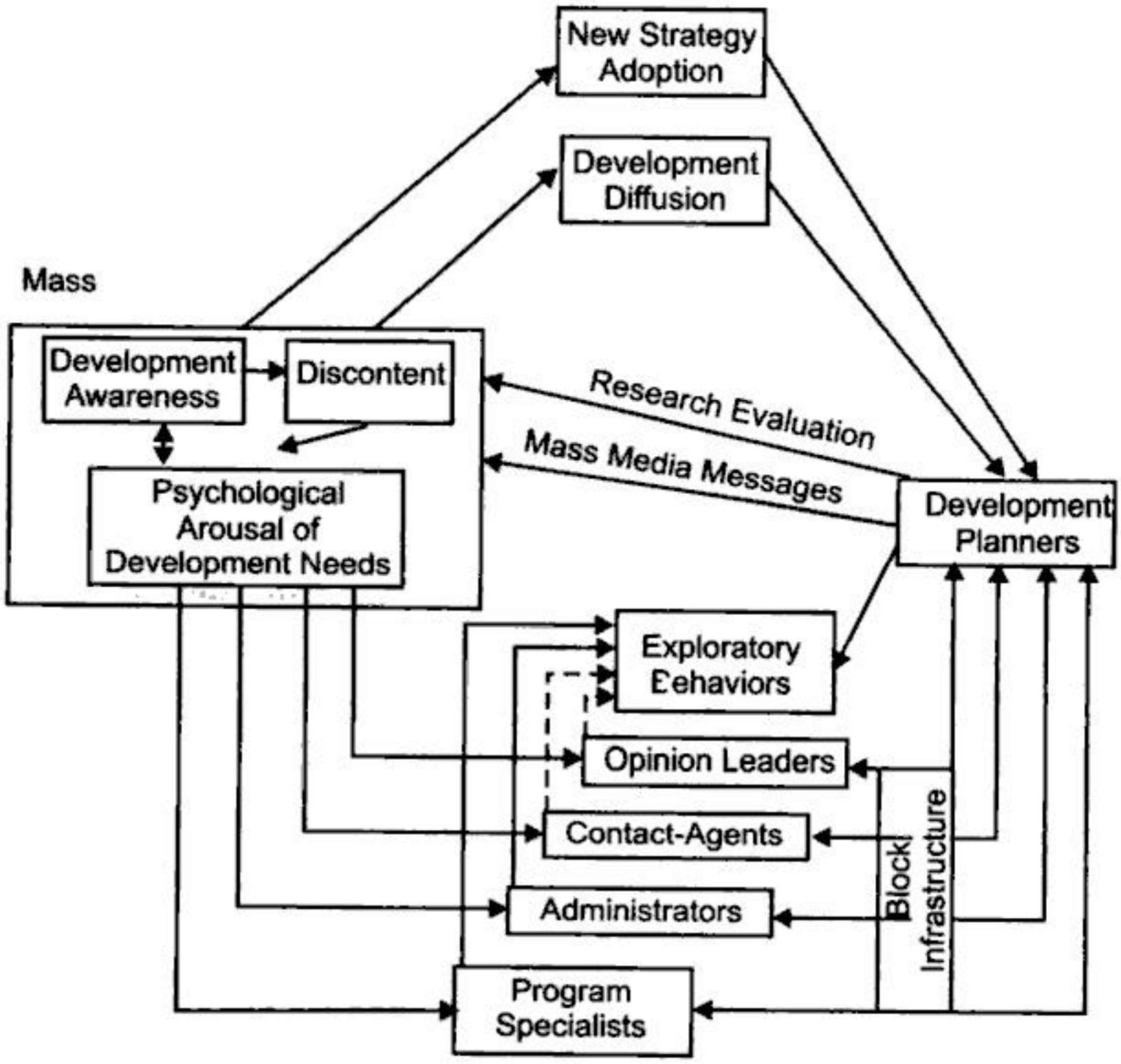


Fig. 2.15. Development: Basic Model

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

Global Communication is imperative these days to connect to people globally not only on just one on one basis but across many countries because of growing needs and demands on many fronts viz. political, economic, socio-cultural, technology etc. A network of communication across countries, inter-country and cross-country leads to globalization. Several countries communicate at bilateral or multilateral levels on specific issues.

Fig. 3.3. Global Communication Model

Globalization Contexts. The frequent inter-country and cross-country interactions depend on their (each country's) needs and demand to interact. These could be economic

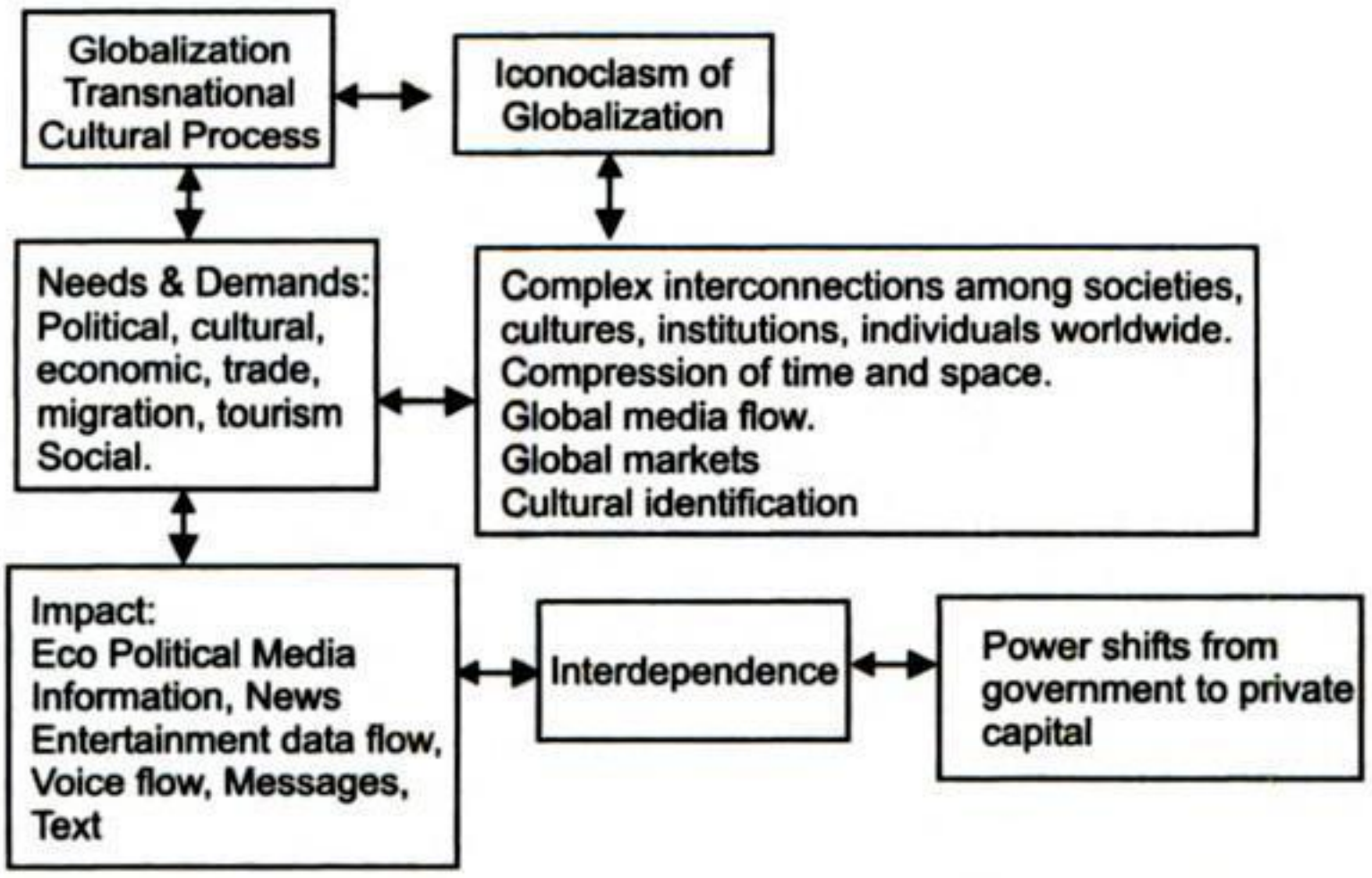


Fig. 3.4. Globalization Contexts

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

fear and apprehensions of losing jobs. In 2000 decades it is now well accepted and ubiquitous. In 90s the video was accepted as an inexpensive means of entertainment through video parlors. Indian government has to censor the video entertainment for its misuse.

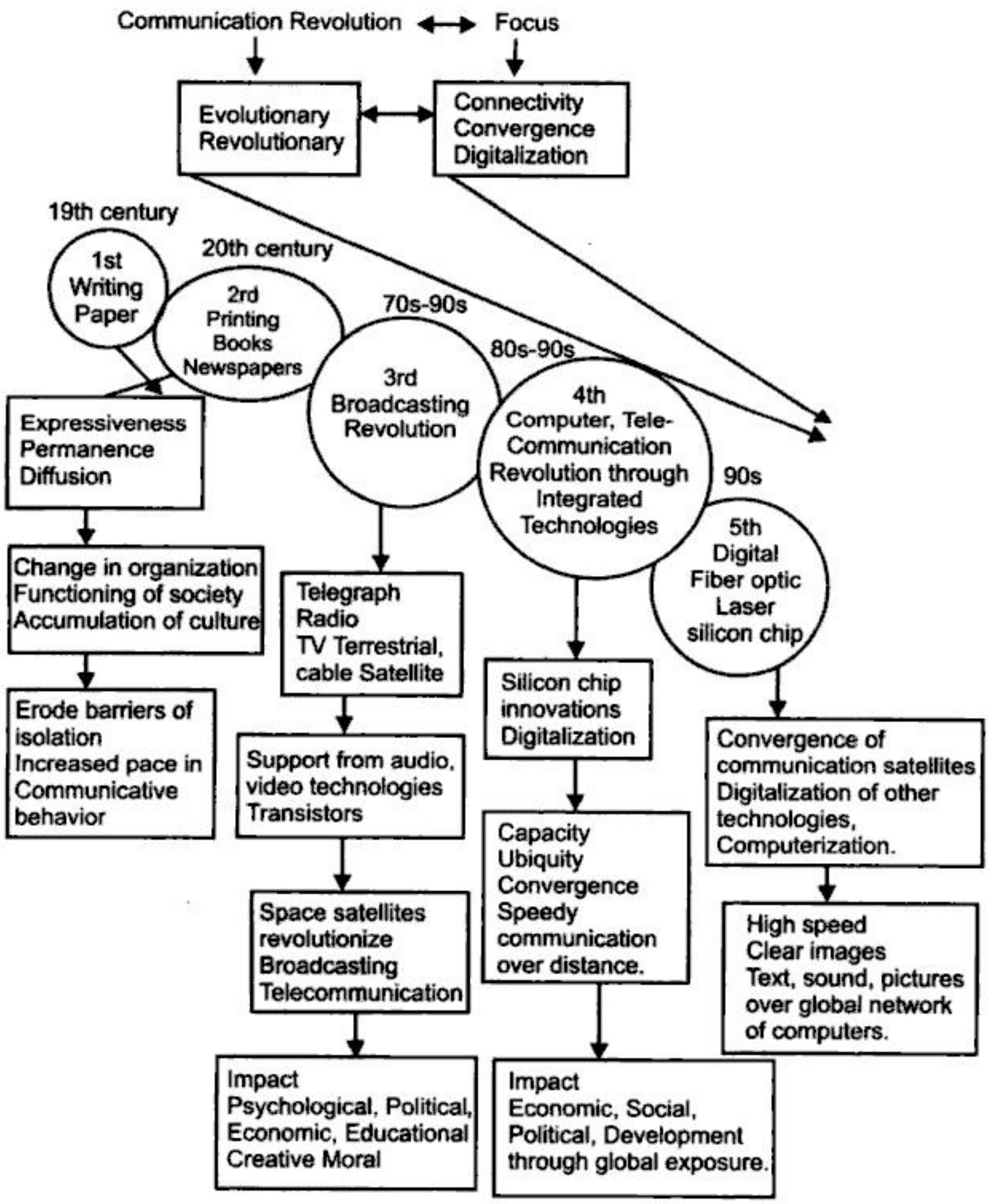


Fig. 4.1. Communication Technology Revolutions

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

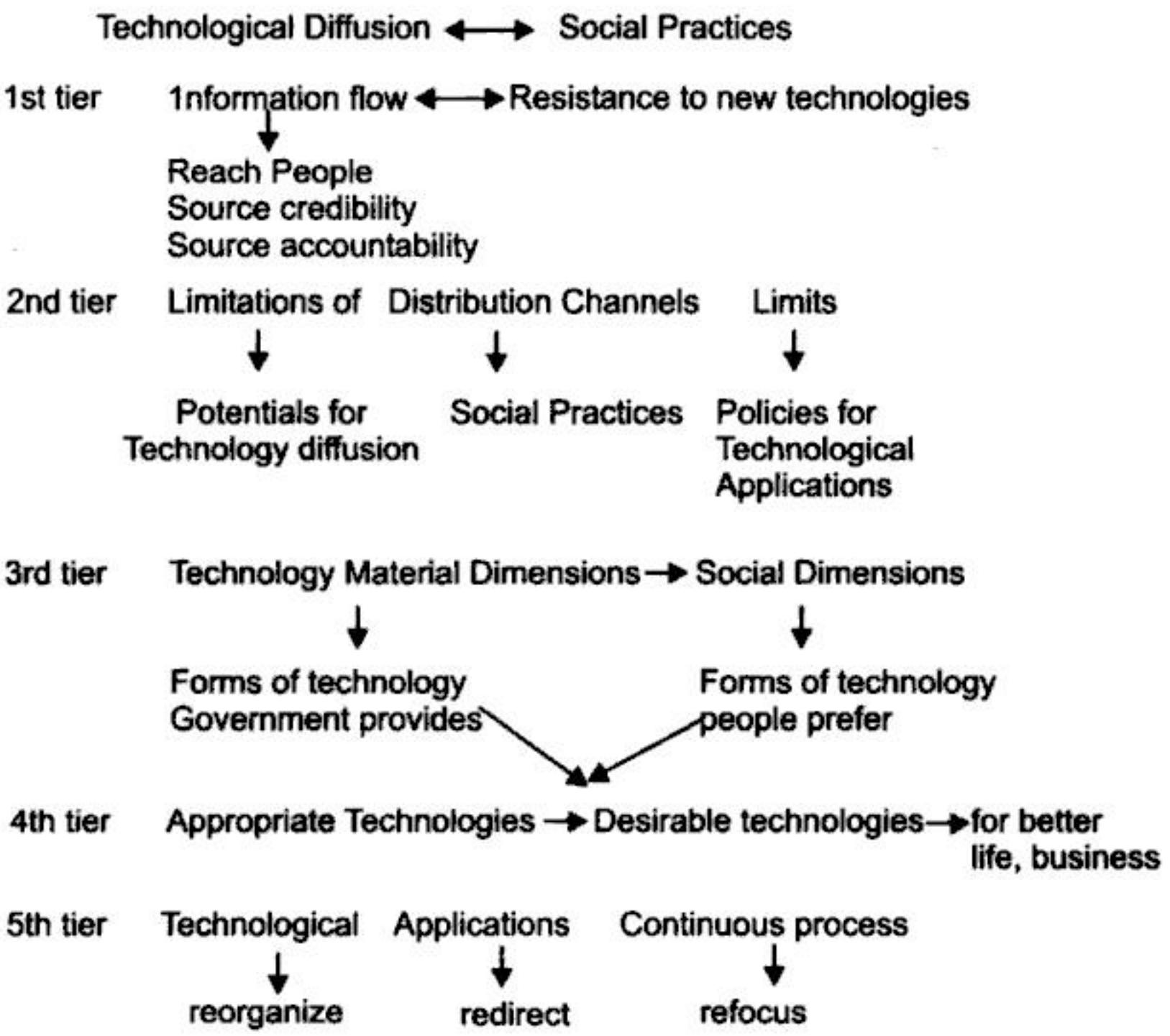


Fig. 4.8. Diffusion of Technology Tiers

When society is using Advance Information Technology in its varied applications; it focuses on varied dimensions to make information technology effective.

Rapid technological change, unpredictability of consumer demands, and diversity of innovative applications have created much uncertainty about the speed of development and diffusion; and economic, social, and cultural impact.

Social research can refine understanding of the complex roles that social, organizational and cultural processes play in the development of ICTs in various sectors of society. Yet the complexities and interdependencies of technological, organizational, and social change make prescriptions for policies and practice highly problematic and contingent on the special and historical context.

The social process of ICTs and its effect on the society represents a new perspective on social and behavioral

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

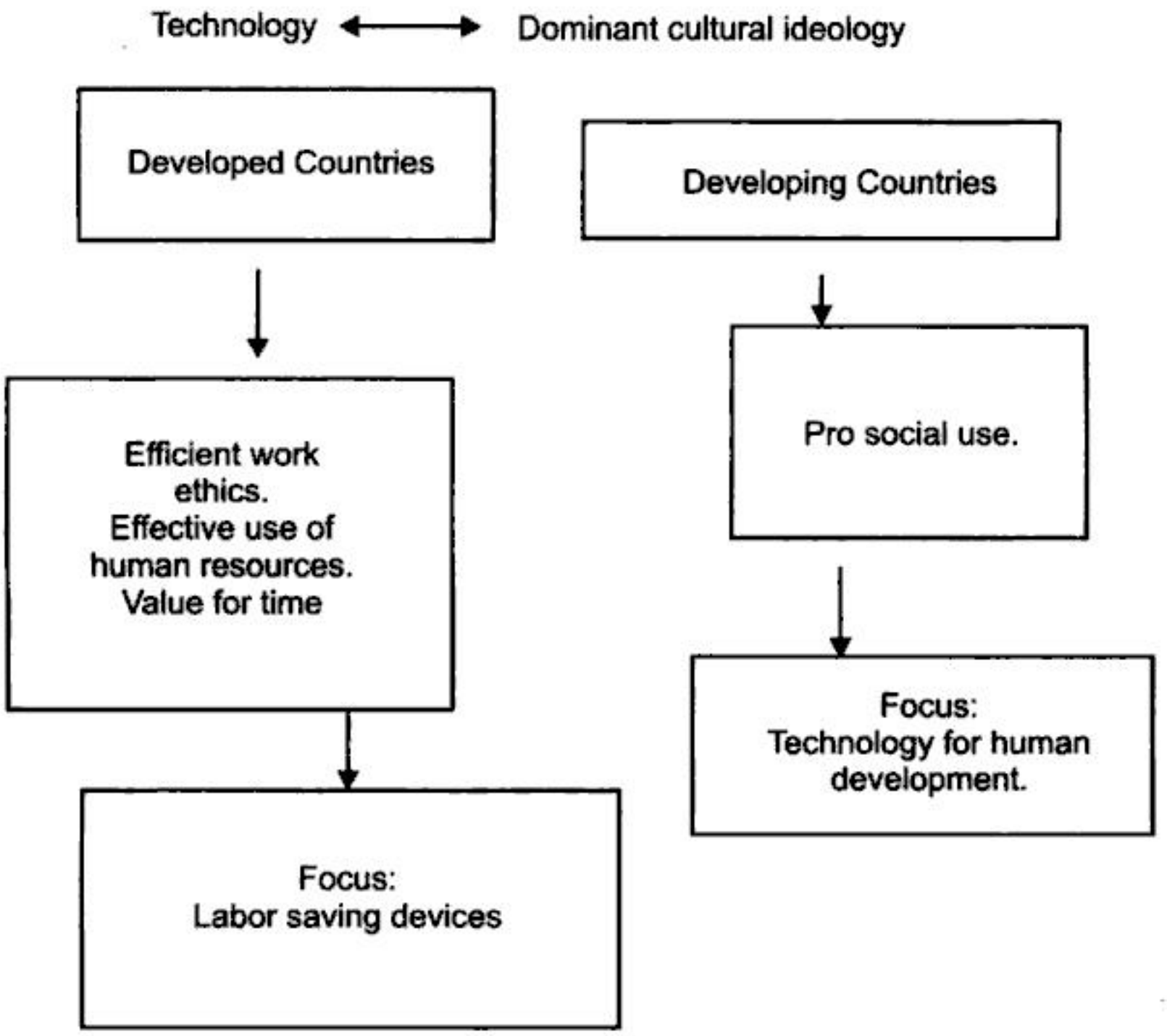


Fig. 4.12. Communication Technology Context

Fig **4.13** suggests that the development of information society depends on the interplay of resources, national policies and inputs. When these factors interact, the outcome is the changing patterns of economy, occupations and employment, work and work ethics, and organizational practices. The changing patterns result in new societal values and ideas.

The information society develops to the advance stage through development of information technology culture and its diffusion. This has impact on national and international levels and facilitates gaining power.

Management of information causes increasing problems for the organizations: (i) how to make a whole of the scattered information, (ii) how to screen out relevant information, (iii) how to extract from the information environment those messages likely to have significance for the organization. Two

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

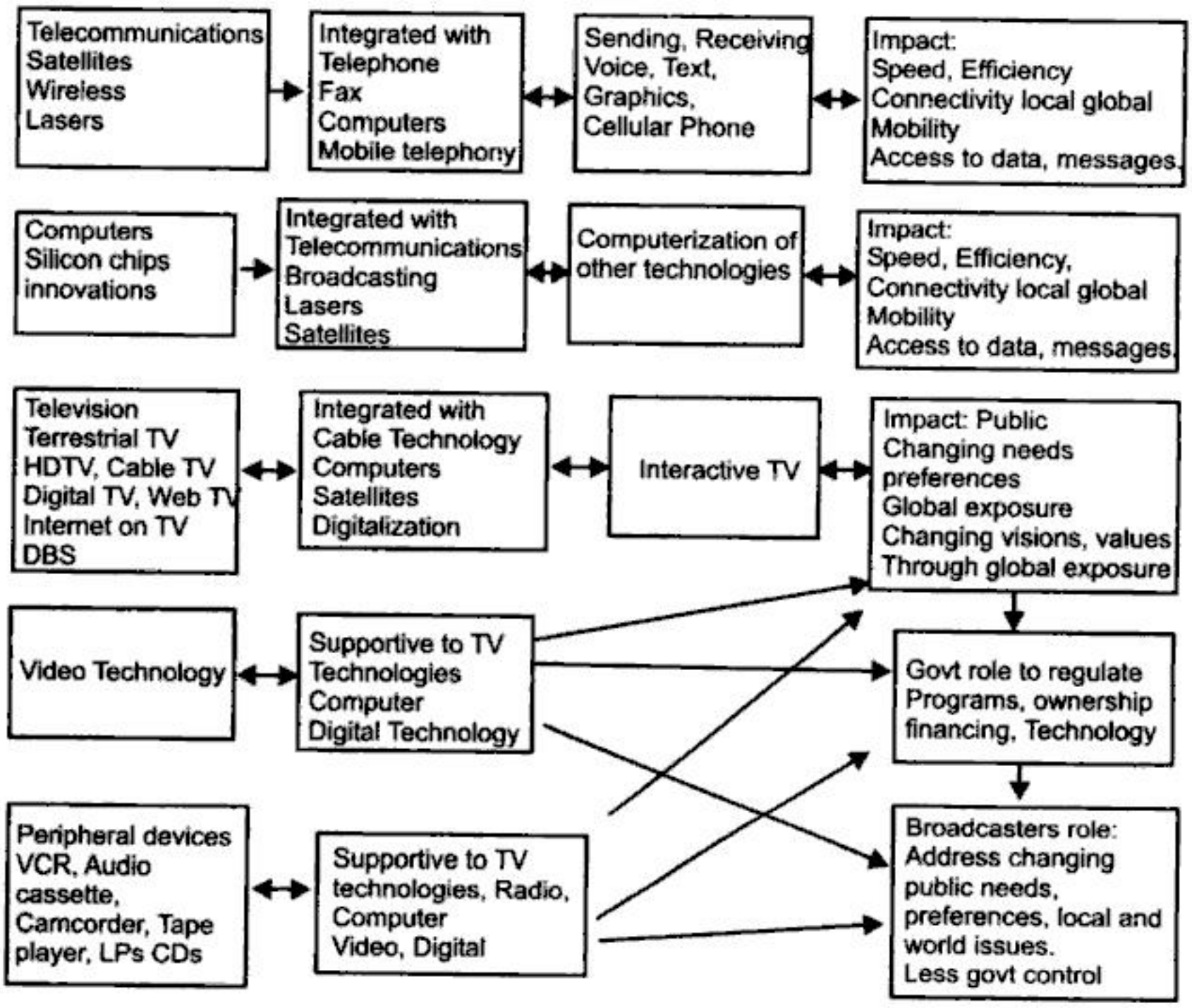


Fig. 4.17. Information Technologies: Integrated Approach

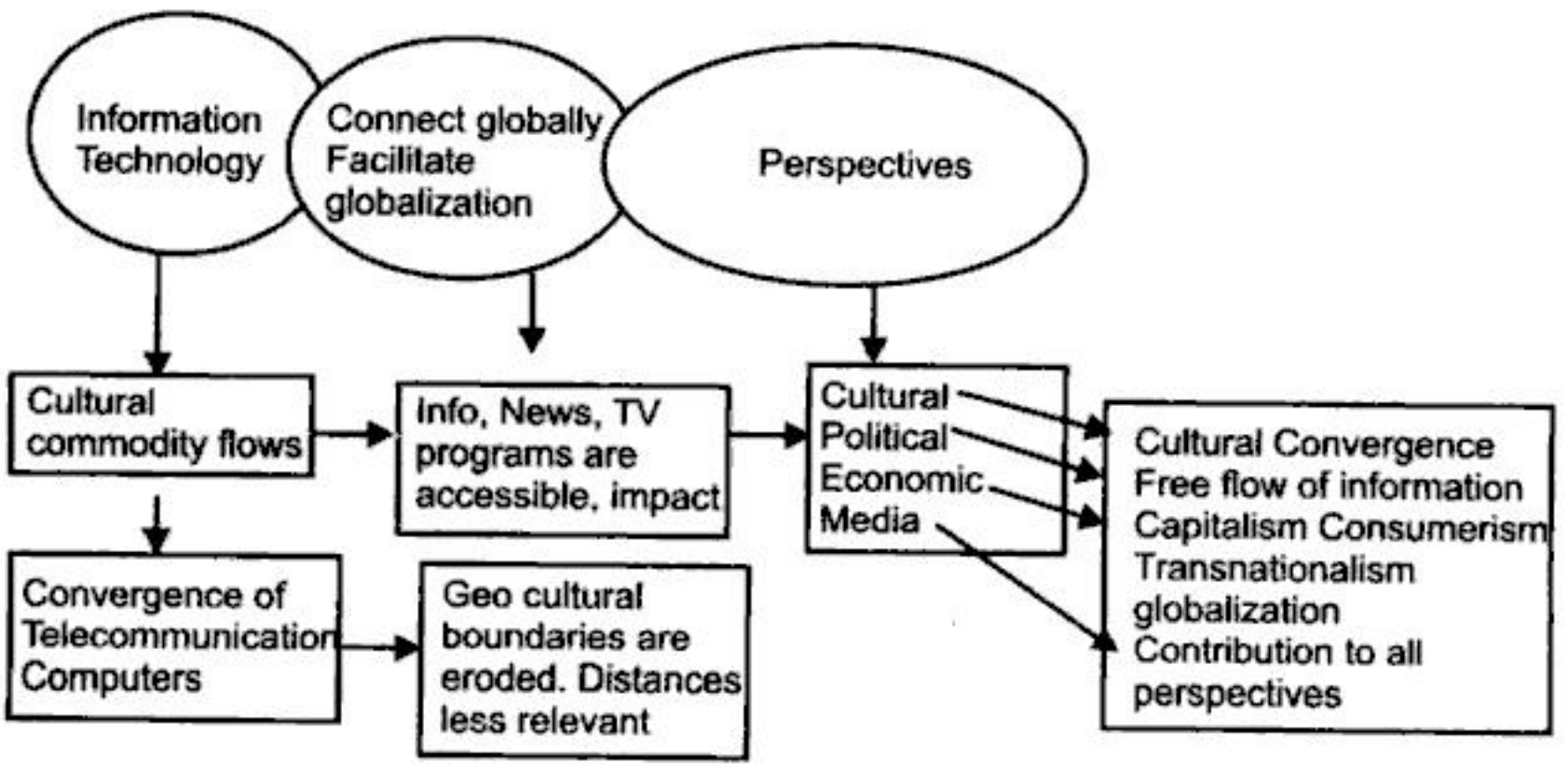


Fig. 4.18. Globalization of Technology

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

The model given below reflects how socio-demographic characteristics and various communication variables involved in the process of acculturation of ethnic groups function and interact with one another to facilitate or impede acculturation.

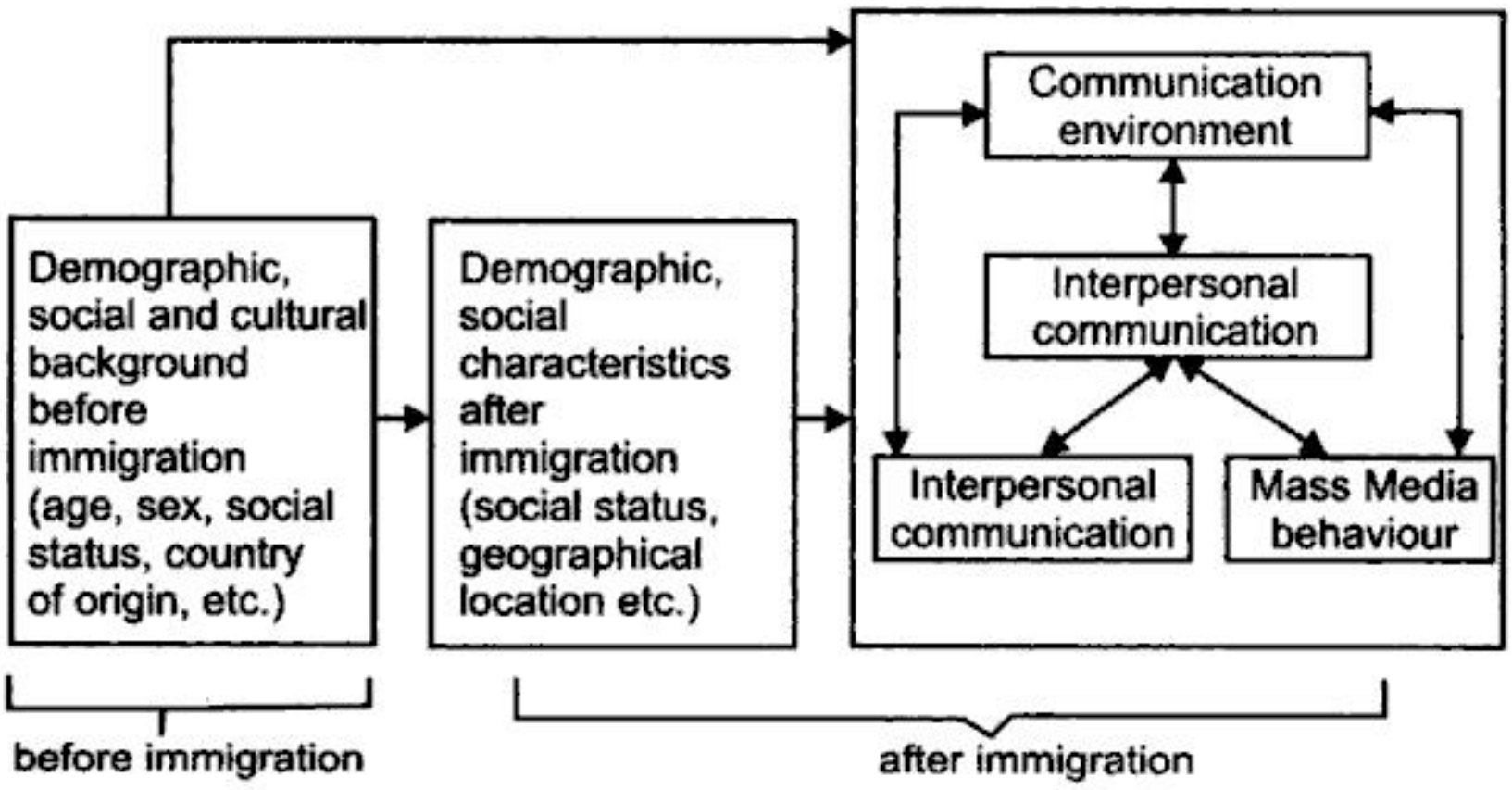


Fig. 5.3. Communication Model for Acculturation

Technology and media connectivity not only exposes people to cultural ways and cultural diversity but it also diffuses the same to a global audience and shape unique cultural ways. The interaction of culture specific images of self and others, stereotypes, prejudices, multicultural settings and media exposure create Intercultural Images which are further facilitated by social communication networks, and intercultural communication competence for wider political, social, economic, business, and technological ramifications.

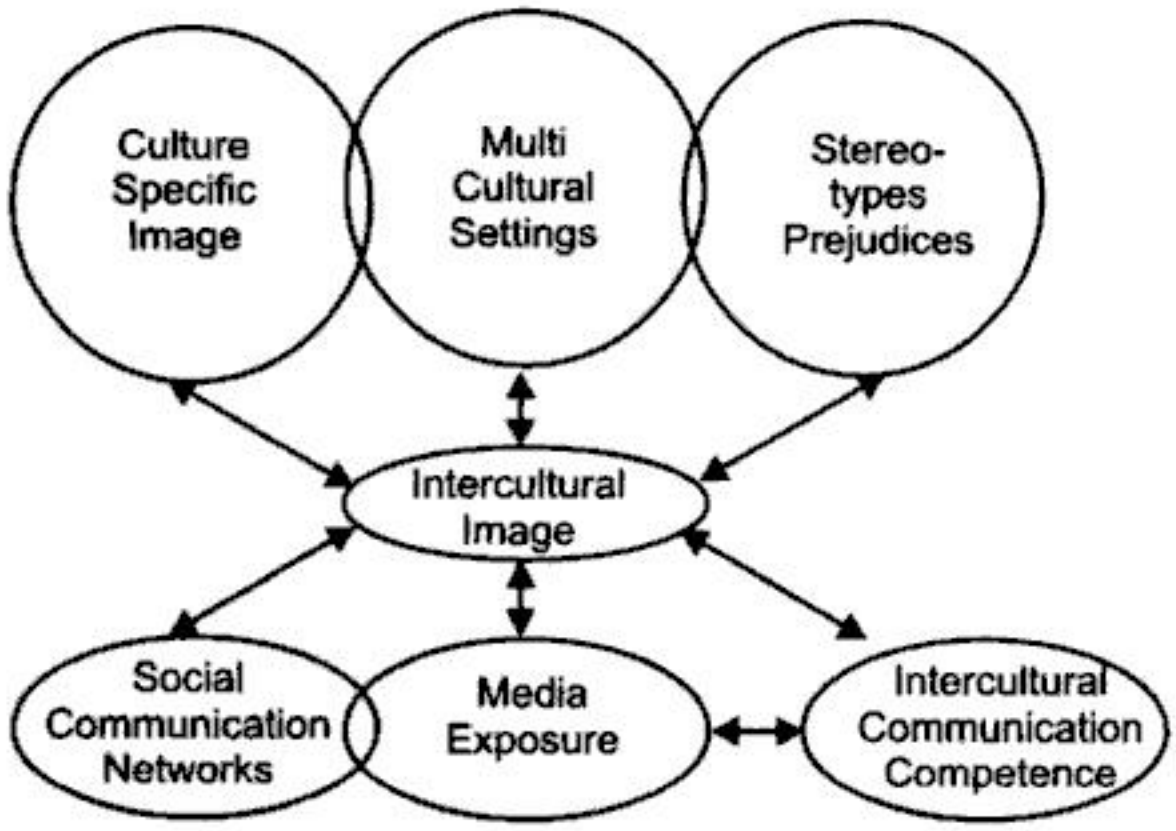


Fig. 5.4. Cultural Diffusion: Intercultural Image

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

6

Communication Management Models

Communication is an important component in every human activity. It is effective when it is managed well. Therefore it is important how communication is managed in various streams

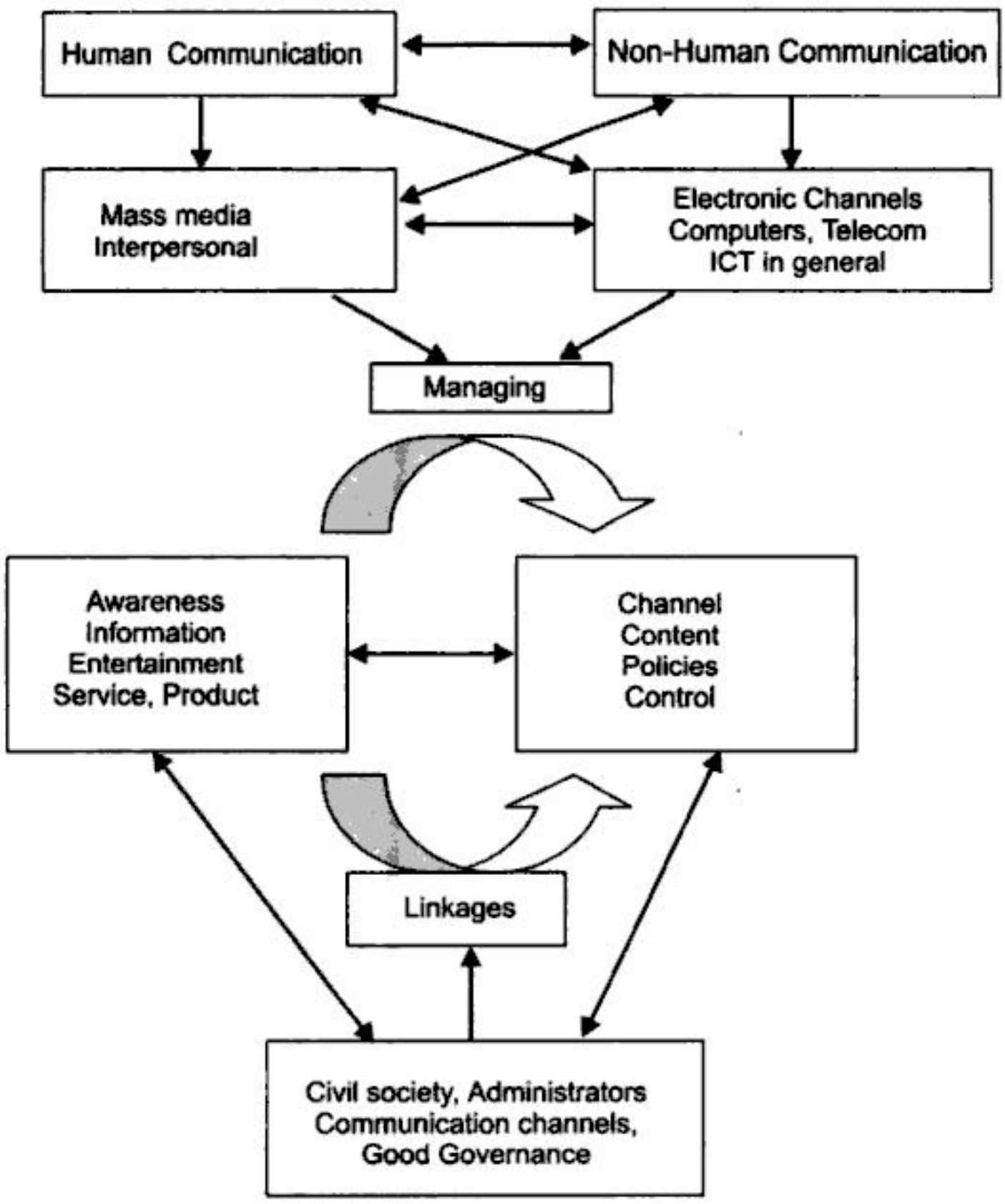


Fig. 6.1. Communication Management Competence

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

below map the variables in conflict when there is disturbed peace crisis. Peace dimensions design helps in conflict resolution.

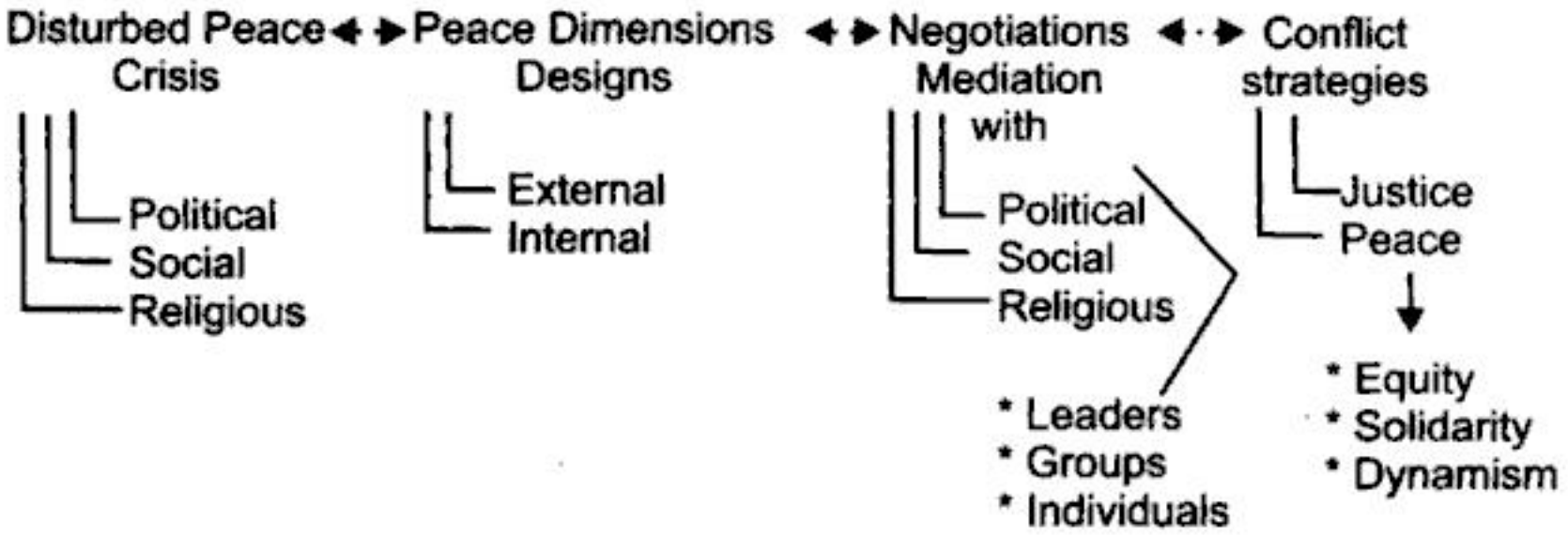


Fig 6.6. Conflict Process Model

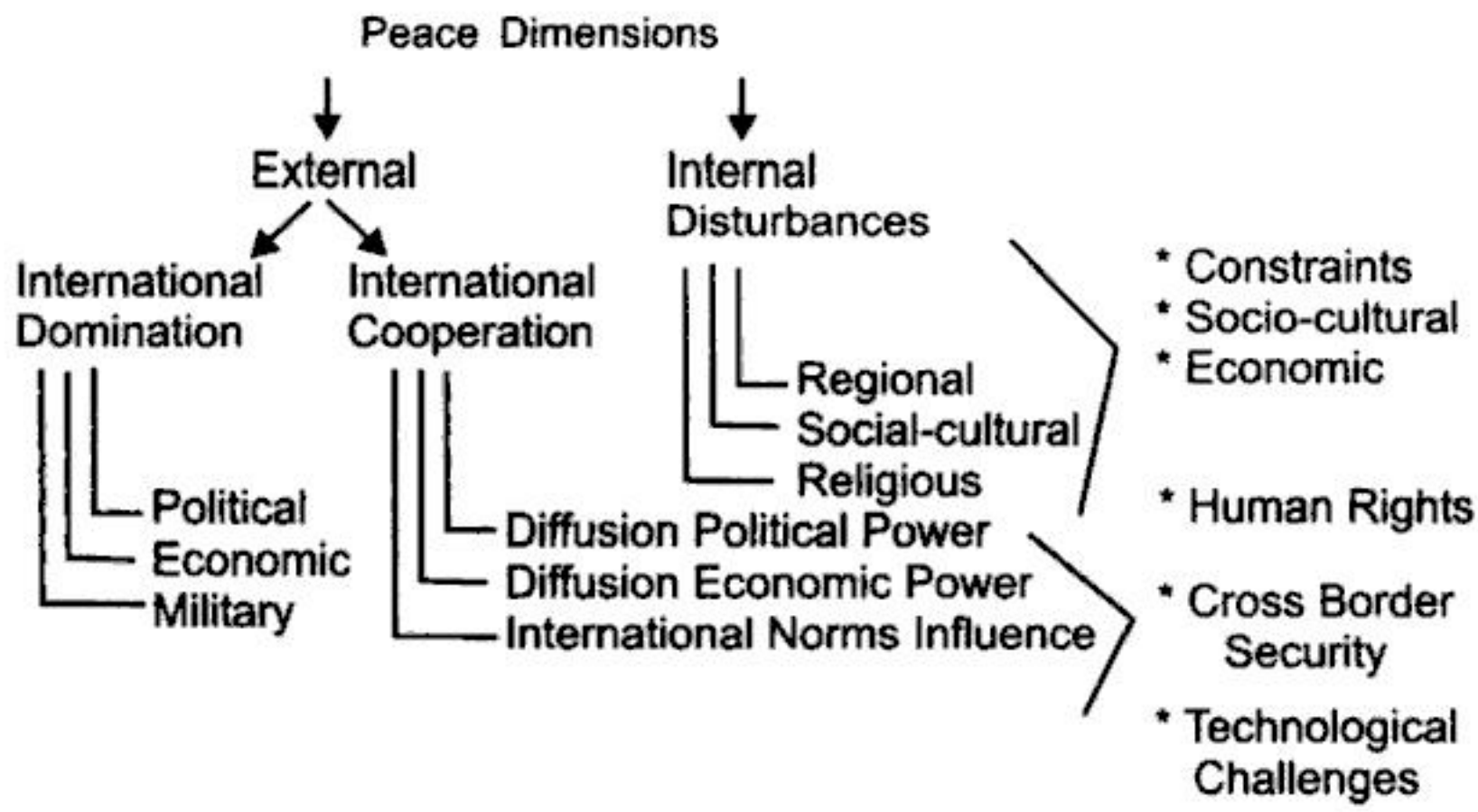


Fig. 6.7. Peace Dimensions for Conflict Resolution

The national and international conflicts are triggered by many variables. National conflicts can culminate in international conflicts. Therefore, the preliminary steps taken by stakeholders is to resolve national conflicts both for the sake of national conflicts *per se* and for international conflicts.

The triggering of conflicts with its issues and consequences, its escalation and de-escalation is modelled. Further, when the social conflicts are protracted, certain dynamics are significant.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

7

Communication Research Models

Communication research focuses on local, regional, national and international issues from communication point. The early researches and confrontation with new communication situations stimulated further communication research in specific areas of source, audience, message, channels and effects (both mass media and interpersonal), communication rules, content and contextual research. Besides this, urban, urban periphery and rural areas are also researched for the specific related issues.

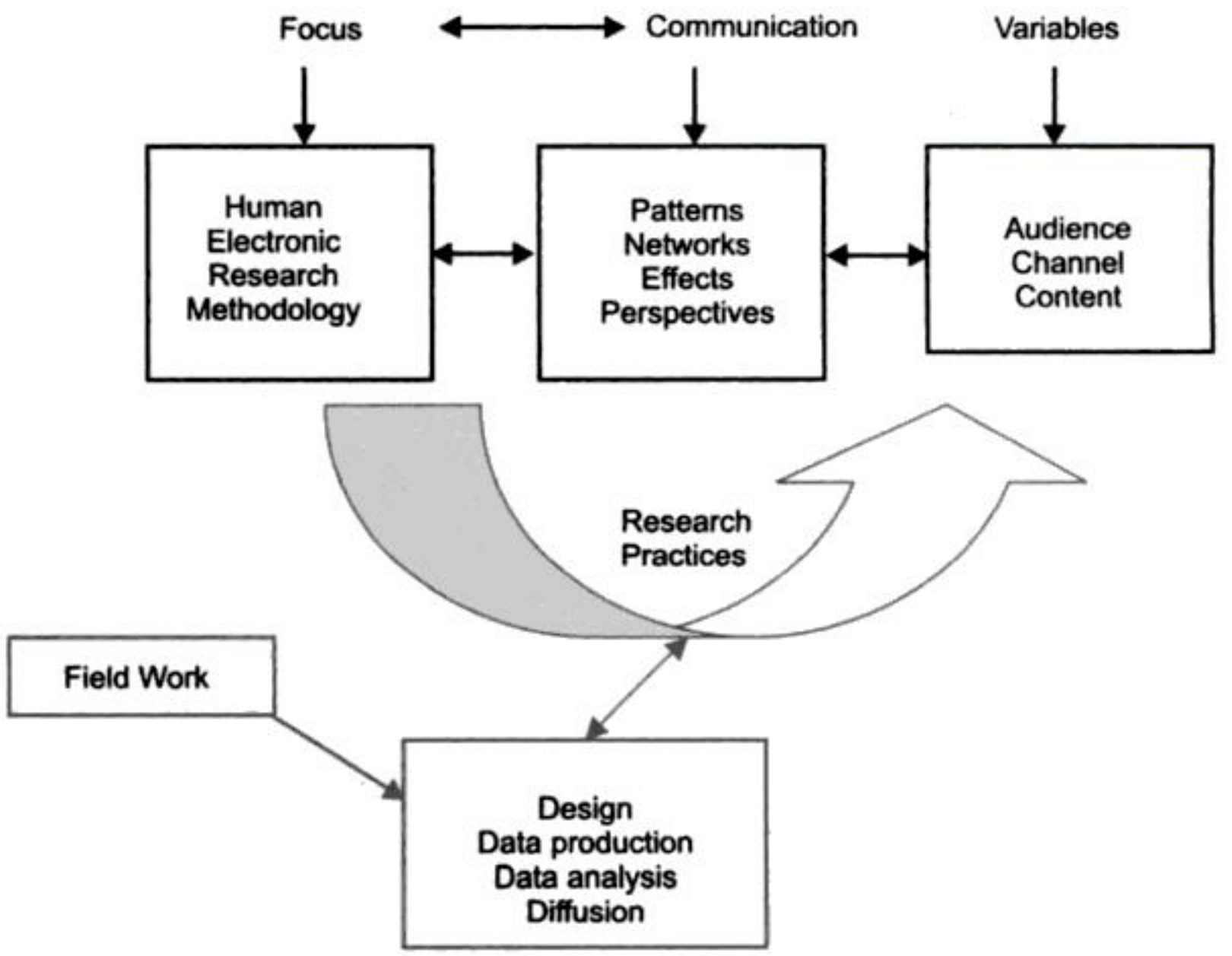


Fig. 7.1. Communication Research Variables

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

The interaction of State, market and public is significant for communication planning.

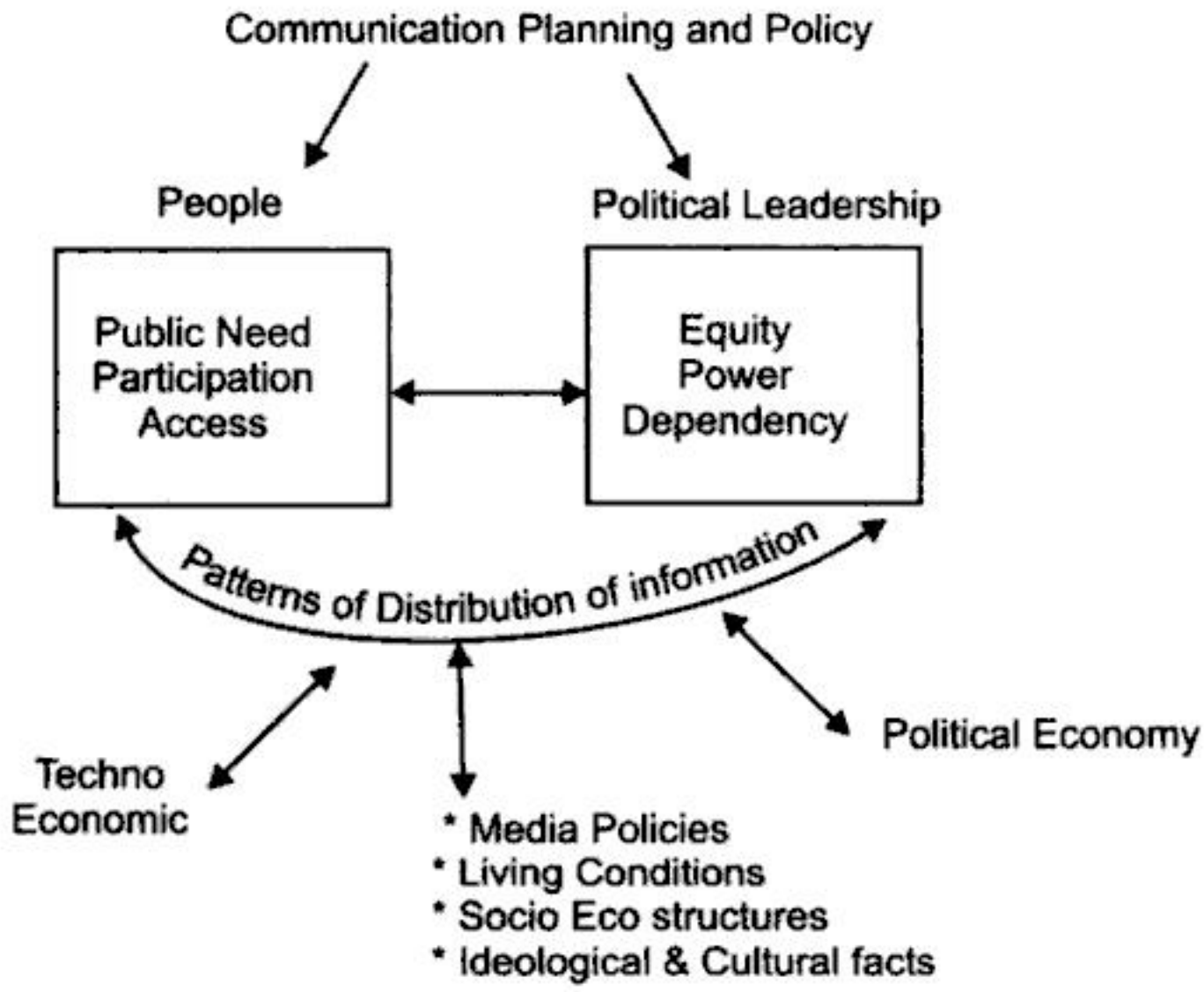


Fig. 8.2. Political Economy of Communication Planning

Different components of vertical, horizontal and cyclical communication planning structure the policies.

Fig. 8.3. Components of Communication Planning

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

PART 2

COMMUNICATION PERSPECTIVES

There are seven perspectives from which human communications is practiced, interpreted and analyzed. These are: Basic Communications, Development Communications, Information Communication Technology (ICT), International Communication and Globalization, Intercultural Communication, Communication Management and Communication Research. These perspectives do overlap and all these perspectives are intertwined as *a Communication Perspective*.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

the *patterns of communication behavior* within the relationship formed between the senders and the receivers; and not with *patterns of information and redundancy.* Communication can be effective by making use of these identified patterns of communication behavior. Four social categories affect the patterns:

- Individual differences that focus on personality differences and traits, physical, psychological and material environments and exposure to opportunities and communication accessibility mold the communication patterns.
- Social categories perspective focuses on communication patterns in rural, urban and urban slum areas as well as between and among various social stratifications.
- Social relations categorized by age, gender, income, education, occupation and social status determine the patterns.
- Group relationship that focuses on patterns in interpersonal communication in dyad, large, small groups and in opinion leadership.

It is important to understand the communication contexts and patterns in a society in order to understand it, issues that it faces, and its communication density. Researches have established the importance of context and communication patterns as affected by various social categories.

Communication effects: It is assumed that very communication message or act must produce effect as desired by the sender. Sometimes that effect may be latent, manifest and not comprehended by the receiver.

Effects can be assessed in terms of creating awareness, knowledge, attitude and behavior change through relationship between communication channels, targeted audience and society

Communication priorities and functions: The major function of communication is connectivity. This could happen through any communication channel. The connectivity is further categorized into getting mutual understanding, creating conflicts, being pro-social and global etc. Within the broad

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

channels in developing countries both as impact of changing media technologies as well planned to suit the needs and practices of the people.

Source credibility is important point for effective communication both for interpersonal and mass media. Source is seen as possessing or lacking credibility for its messages and interactions. There are three types of credibility: *Initial* or *extrinsic* credibility that the source commands because of its title or position or brand channel in the mass media. *Derived credibility* is what the listener perceives. It depends how a speaker communicates i.e. the degree of conviction, intelligence, and competence of the speaker. The content of the discourse and how it is presented and what takes place on the whole during the interpersonal encounter or media presentation affects the credibility. The perceived credibility can be changed and rebuilt if it is not favorable. *Terminal credibility* is what the source is seen to possess after interpersonal interaction is over.

In case of mediated messages, the brand image built over a period gives the initial credibility. But its derived credibility depends on the importance and reliability receivers give to its messages. For instance, to start with, government news broadcasting channel may have credibility. But it may lose credibility, if over a course of time people find that they get censored, delayed or distorted news through the government controlled channel. Derived credibility matters most in mass mediated communication and initial credibility is secondary.

In interpersonal communication both initial and derived credibility is important. People trust political and social leaders who they know are competent and intelligent and are able to convince them about their ideas, policies and programs. Terminal credibility varies in both types of sources.

Media consumption is the interplay of utilization of mass media, actual exposure to mass media, and opportunities for exposure to mass media channels and messages. These are socially constructed and maintained practices.

The kind of media used, and extent of media consumption changes overtime. The change depends on variety of factors such as media technology availability, resources, purchasing

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

People will choose a TV or radio channel depending on the messages they are looking for. Are they looking for political or social news, entertainment or adventure? This may be true while selecting films to watch—is it escapist fun or the reality that they want to experience through cinema. Other media or ethnotronic channels are used according to what messages we want to receive or give. The different kind of messages chosen can be serious news about politics, economy, health and technology; pro-social entertainment, crime, war and political upheavals etc. Our choice of these messages can also express our involvement or indifference to the issues focused through the contents.

People look for reliability, credibility, utility, emotional and rational appeal when choosing content whether it is through media or interpersonal communication channels.

The miscommunication may come from two perspectives. One, the source did not structure the message correctly for transmission. Two, the listeners did not correctly listen to the message or the listeners applied their own meaning to the message. Thus distortions do occur due to intentional or unintentional interpretation of the content. This does happen in case of spreading of rumors. Content may get distorted because of incomprehension of the subject-matter or meaning. In print media language difficulty or lack if literacy may constrain knowing the content and distorting it. The recipient to suit its own preconceived notions may distort even content from an alien culture.

Evolution of communication models. These were developed by Communication exemplars over a period of time. These are further developed in consequence to our changing understanding of the concepts, elements of communication process, and communication rules etc. through ongoing process supported by research and development. Actually these are the foundation models in communication discipline. The evolutionary process of these models is discussed in Part 1.

Practitioners, researchers and academicians developed pertinent communication models through communication research and development in different aspects and domains of communication *per se*. Some of these evolved based on

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

changed with the changing dynamics of development, and the technological breakthrough in the mass media channels. There have been *four approaches* to understand development in national and international contexts. The four approaches are exemplar for development and present the historical perspective. The restructured development approach presents the current scenario. These changing models addressed three questions:

How to do development?

How did the problem of underdevelopment start?

Why do development efforts not work in some of the developing countries?

One, Modernization approach viz. Dominant Paradigm and New Paradigm of Development. Dominant Paradigm was operative in 50s. This paradigm was based on the observations that the differences in per capita income between developed and developing nations could not be explained in terms of differences in natural resources or other factors outside human control. Add to this is a value structure that identified an absence of certain modern conveniences and material culture demanding redress, and the conditions of most of the nations was interpreted as a plight caused by their own failure to use their human and natural resources as full potential. The problem might be due to lack of technology, an inability to put natural resources to their best use, an inability to harness optimum potentiality of their human resources, the lack of adequate economic institutions, or the inefficiency of government or market machinery.

In this context, the developed nations were taken as the ideal. Development focus was on increasing productivity, economic growth and industrialization through capital-intensive investments.

The second emphasis derived from an analysis of cultures of developing nations was that the attitudes and folkways of traditional people were ill suited for the demands of modernization. Therefore, a planned change of values, attitudes and behavior was necessary. Communication and uncritical faith in its power was seen as an indispensable tool for making people modern (Lerner, Inkles and others noted).

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

International community supports these concerns and efforts by providing monetary aid, food and other materials, technology and skilled manpower. The rich nations act from humanitarian as well political domination point of view.

Fourth Approach is Communication for Development. The communication perspective focus on how any form of social behavior expresses and (re) constitutes the social reality of the actors. It is a process by which persons collectively maintain and create 'social reality'. Human beings simultaneously live in a symbolic universe (social reality) and are engaged in sequences of interactions with their environments and with other people. They draw from the resources of their social realities and from the practices in which they are engaged with others.

In what way do development communication and other forms of actions express and constitute the social reality of the masses, planners and the change agents who deliver the messages? The phenomenon is best understood as 'enmeshment' in a particular system. A person is enmeshed in a system to the extent its boundaries comprise the horizons of a person's visions. Those who are enmeshed comfortably within a particular social reality, see its limits as the limits of the world. Analysis from communication perspectives discovers and articulates the limits of social realities and to show how these limits sometimes channel people into unwanted patterns of interactions.

The process of communication is an excellent means for coordinating interpersonal actions, but is a very poor means of expressing individual mentalities or for achieving mutual understanding. For a complete analysis, one must know what the actors themselves do not know about themselves and their interactions.

Communication has played significant role in all the approaches both in national and international development contexts. The evolutionary scenario of development communication globally in general and India in particular presents paradigmatic changes both in development and development communication. There have been several paradigms of development, each of which has slightly different

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

bias, aggravates dependency that unleashed frustration among the low earning level population and leads to collective aggressiveness as an escape valve.

The dependency theorists argued that communication serves the purpose of publicizing transnational interests only. If development has to occur then this role must change. The communication strategies should focus on educating people about the vicious nature of the stifling dependency relationships; and to mobilize national and regional support for the structural support of the society. They emphasize the use of interpersonal channels since mass media channels are caught in the dependency relationships.

The communication role changed in Basic Needs Development Model. The role was to create awareness among the masses about their basic minimum needs, its fulfillment and development. Interpersonal channels were advocated as important for development along with the media channels. As it was realized that poor people in the developing countries who needs development the most have low physical accessibility to media channels. Though government in these developing countries tried to provide community media access but there are information and social access blockages. Therefore interpersonal grid of communication is necessary.

The New Paradigm of Development in 70s emphasized the participatory role of people to achieve development. This communication model is interactive. It emphasized top-down communication from authorities to people, as well bottom-up from people to authorities and bottom-bottom, people to people communication. The audience is active and participatory. Thus there were many pathways to development and exact combination would be somewhat different in every nation.

The development communication models of the first three decades needed a changed perspective to make development effective. Developed countries had planned the earlier models for developing countries and a single communication pattern was being advocated for all developing countries. But the New Paradigm Development Model advocated that there should be country specific model for development and development

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

Globalization approaches as communications perspectives would be discussed in details in the following sections (Information Communication Technologies [ICT] Perspective in Part 2)

WIDER (May 2003) Conference in Helsinki on inequality, poverty and human well-being discussed and reports that the gaps in living conditions growing within and between countries, inequality, poverty, and human well being remain as the core issues for researchers and policy-makers alike. Rapid technological changes and growth has resulted in large disparities in the living standards within and between regions and countries of the world. Research emphasis has shifted from determinants of economic growth and convergence of per capita income among countries to the distribution of income. Regional disparities in the income, the incidence and depth of poverty, and health and education status is particularly high in large developing countries; reflecting such factors as historical differences in the pace of development, the uneven impact of economic reform, and discrimination in the provision of economic and social infrastructure. Thus National indicators of human development can mislead policy-makers when large regional disparities exist.

Measures of human well-being are used increasingly to monitor and evaluate performance within and among countries. Not only the numbers of indicators have increased appreciably in recent years but also these measures capture more fully progress in human well-being or development.

WIDER (March 2003) Conference in Tokyo discusses the rising income inequalities and spatial disparities. Spatial inequality is a dimension of overall inequality. But it has added significance when spatial and regional divisions align with political and ethnic tensions to undermine social and political stability. Spatial disparities in human development have attracted considerable interest from policy-makers. In countries such as China, Russia, India, Mexico and South Africa and most of the developing and transition economies, there is a sense that spatial and regional inequality (of economic activity, incomes, economic structure, social indicators, population, infrastructure and public expenditure) is sharply

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

Development needs restructuring

New conceptual and practical demands on development and communications suggest reengineering and reinvention.

Development innovations, civil engagement, enabling environment, social accountability and participation, civil society in communication driven development, and self-regulation of civil society in development and e-government are some of the important factors in the restructured development scenario of current 2000 decade. This calls for mainstreaming e-development.

The goal of development innovations is to make the development more effective and efficient by disseminating innovative solutions to development challenges, contributing to an understanding of what drives innovation on the organizational and national levels, and providing tools for stimulating innovation on these two levels, or innovative approaches to improve society. We can define development innovations by four elements: novelty, effectiveness, significance and transferability. Does the innovation suggest a leap of creativity (novelty)? Is there evidence of tangible results (effectiveness)? Does the innovation address a problem of public concern (significance)? Can the innovation, or elements of it, be adopted by others (transferability)?

The innovations can be innovative ideas, policies, programs or practices. The efforts may be on adapting best practices in the focused areas of development, research on grass-root innovations, and technology enabled innovations. It is important to find funding for innovations, and find public and private partnerships for developing them.

Civil engagement is the participation of people both at grass root level and of civil society expectedly in democratic participation. The people and their organization network of people—civil society organizations (CSOs) influences and share control over priority setting, policy-making, resource allocations and access to public goods and services through democratic methods and public approval.

Enabling environment is a set of interrelated conditions —legal, bureaucratic, fiscal, informational, political, social and cultural that impact on the capacity of civil society organizations,

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

expand employment and earning opportunities for poor, marginalized groups, in rural areas and women. ICT may be used to increase access to market information and to lower transaction costs for farmers, traders, artisans, etc. E-development would aim to enable sustainable development by using ICT applications for clean technologies.

E-development strategies need to be shared by development community. Forums and other ways of accelerating the diffusion of knowledge within countries need development and encouragement. E-development can only be achieved in partnership. The partnership among the four — government, civil society, private sector and academia is important. None can take sole responsibility.

The government takes key role and takes a leadership and facilitative role. The private sector plays a crucial role not only in deploying ICT for specific applications but also in facilitating and outsourcing of some government services, and in co-investing with government in various public service modernization projects.

Civil society and NGOs can play vital role in using ICT to overcome the digital divide, for the rural sector and mobilizing and building capacity of the poor, women, youth and isolated communities to use ICT tools. The commitment of NGOs is important for articulating the needs of the community especially the isolated and vulnerable groups that would otherwise be disempowered in the society. Academic community has to be involved in this revolution. Reflection, monitoring, evaluation and analysis on the part of research community are extremely important. They are the one who are mobilizing new generation to utilize ICT. They would be motivating them to work with NGOs, civil society, the private sector and the government to generate new ideas as how to exploit ICT more effectively for development. They can be the change agents in society.

The World Summit on Information Society (Dec 2003 in Geneva) in the context of promoting agenda for e-development creates awareness and bring commitment at the highest levels of governments, civil society and the private sector towards some higher vision that enable all societies to benefit from ICT in two ways.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

around the world and to reduce the overall development gap among people in different societies.

It is an ongoing journey—you gain some, you lose some and in the end come wiser and stimulated to move on, and move ahead.

Summary

International development theorists and practitioners have conceptualized development from various perspectives such as social change, modernization, progress and alternations in life styles. All the perspectives have encompassed 'growth', the economic growth viz. industrialization, agrarian, and technological growth and the social growth identified with structural and value changes.

Development in developing countries *vis-à-vis* providing quality of life to people through modernization has been one of the major concerns of western countries since 50s. An historical analysis of development models since 50s provides insight into the changing development models. These changed with the changing dynamics of development, and the technological breakthrough in the mass media channels.

There have been four approaches to understand underdevelopment and how to do development. These are: modernization through dominant paradigm, Interdependency model, Basic needs model and communication for Development Model in national and international contexts. These approaches are exemplars of development and development communication.

There is a change, and since 70s the national governments and the people themselves have conceived the development for their own societies. Therefore all later models are country specific.

The last six decades of research has revealed that role of communication in development is significant and it has changed with the change in development models.

Development Communication scenario has changed globally in the last six decades. There have been four-pronged major changes. The focus of development has changed, nature of development demands and issues have changed, new

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

The logic of international interaction forces a high level of homology on the societies in today's world, meaning not only that they have to have structures of State, Capital and the Civil society with the Media influencing the three. But the parts have to have some similarities. The economic systems can be expressed in terms of the relative power of these three parts of modern society.

The basic thesis is that many of the problems of modern society derive from lack of communication among the three in bilateral relations: civil society – state, state — capital, capital – civil society. It must satisfy five criteria of dialogue, decision-making, having a broad agenda, be fairly regular, and be transparent. Can media fill the communication gap? Can multiple memberships fill the communication gap? (Galtung, 1999), "Tell me how State, Capital, and Civil society dialogues with each other and I shall tell you what kind of society you have". Civil society can use normative countervailing power. The essence of democracy is transparent dialogue as a prologue to decision-making for social transformation.

The significant facilitators for international communication could be directive or persuasive for bringing three types of changes: (a) creating awareness and disseminating information, (b) bringing attitudinal and behavioral changes for mutual understanding and (c) by educating and motivating people. The dynamic interplay of source, message, channels and audience is necessary for effective and successful communication.

Why do we need to communicate internationally?

Today, the world has become small in literal sense. Awareness, information, and knowledge about different people around us in different regions of the world through media exposure have made us curious to know them. Media and transport revolutions make us curious to know them well. We see around us people from different lands. We get instant feeling that they behave differently, they talk in different styles and languages, and they show different living styles. We feel the instant desire to know them better. We see TV shows and news. They tell us about different happenings on the world front, the lifestyles, and the political, socio-cultural and

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

the five basic minimum needs of food, shelter, health, education and employment. This started with a global perspective on eradication of absolute and relative poverty.

Thus, earlier globalization perspectives had mixed concerns — development, power and cultural ideology domination, control of communication channels and the information disseminated through them and commerce controls. These concerns were more authoritarian in nature and moved in one-way direction — from developed to developing and poor countries. These had some elements of exploitation.

The current globalization perspectives have their roots in the early vision of 40s, and development communication models of 50s through 70s decades. The driving forces for globalization today are military and security, trade and commerce, technology, media, development and tourism.

Globalization Process

Globalization currently defined is a process that creates connectivity and convergence. It is understood from four contexts. One is cultural convergence. Second is political context, which is concerned about free flow of information. Third is economic context focusing on capitalism, consumerism, transnationalism, and globalization of western economic values. Fourth is media context focusing on media contribution to all the above-mentioned three contexts.

Information technology is important for the globalization process. It has impact on globalization process and vice versa. Importance and impact of information and ICT in the globalization process addresses three factors for rapid globalization: the liberalization of the market; encouragement of competition among different systems; and globalization processes in the context of third world.

The changes brought by ICT by the end of century are of tremendous concern. The powerful flow of cultural commodities — information, news, and various television programs saturate the world markets, as they become accessible via satellite-broadcast. The developing countries face serious challenges of whether to hook with the world telecommunication system or to avoid such integration in

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

manifested in hardware and software transnational media products (telecommunication, video, TV), other commodities, business, banks, and advertising agencies etc. Others think of cultural convergence as evident in things people think about, the ways in which they think, and which things are expressed through everyday social practices. Other aspect of 'cultural hybridize' arises from play of global forces through immigration, in search of employment opportunities and global trade.

Technology is presented as a revolution that shapes society. The idea that society might have say in its shape is generally presented as ludditism. We find current technological tools of globalization turning themselves into tools of digital divide.

The deregulation and globalization that were supposed to lead to more capitalism and competition are leading to increasing number of monopolies and oligopolies. The result on the negative side is a frightened nationalism and on the positive side the rise of democratic-based regulations. Democracy is not the product of market place; rather democracy creates the conditions, which renders possible long-term market place prosperity.

Globalization process in its economic context can erode the autonomy of nation states when they have to follow the prescriptive policy of the world financial institutions from which they may borrow loan for development.

The current model of globalization has done very little to balance new economic structures with new social structures. We have worked hard to globalize the economic regulations and much of this has been positive but we have done almost nothing to globalize social and political regulations through enforceable treaties negotiated by the representative of the citizens at the nation state level. Not to balance social agreements with economic agreements sap the power of citizens. It has created imbalance within our societies and between self-interest and public good.

There is nothing wrong with globalization, the ugly nationalism or negative protectionism. It is a theory that can take many forms and pretend that internationalism can exist in a predetermined and inevitable form. A sensible use of ongoing technological revolution can be made; if the market

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

built on the earlier work in UNCTAD, the experience of EU, and the initiatives of the OECD. The study concludes that existing arrangements for global governance are undemocratic in terms of both representation and decision-making. 'The reality is that all countries are not equal partners in the world just as people are not equal citizens in a democracy'..... the essential corrective then is to create institutional mechanisms that give poor countries and poor people a voice in the process of global governance.

WIDER research study notes that globalization has reduced the power of the national government without a corresponding increase in effective international cooperation or supra-national government that could regulate the market driven process. Without effective international coordination, international public bads (such as international crime, or international trade in drugs, arms, organs and people) are bound to increase while public goods (such as world peace and sustainable development) are most likely to decrease. An international mechanism for cooperation between nation states that facilitates coordinated action and cooperative behavior is needed.

WIDER (2003) study comments on the role of international institutions. The essence of the problem is the international capital flows without any international controls. Another failure is in promoting development, which is reflected in the persistent poverty and growing inequalities. The crisis of development has in fact accentuated in the era of globalization.

Nayar Deepak in this study notes that World Trade Organization (WTO) should recognize that development is the primary objective, so that poverty eradication, employment creation are just as important as trade liberalization and trade expansion. In the same mode it must be recognized that desirability of outcomes is more important than the procedural uniformity of rules. There is obvious need for an efficient system of representative decision-making in the WTO that is also democratic.

Nayyar emphasize that there are no international rules or international institutions that govern the cross-border movements of people. Yet illegal migrants, guest workers, and body-shopping is reality. There is a potential conflict

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

Further, he has linked the strategies of development to economic and social development. The solutions are healthcare, education, land reforms and empowerment to people. The developing countries do not need 'trickle down' from western countries but they can achieve development by developing their manpower. Human development is the main focus. It is necessary to bring into the public domain discussions about social deprivations and create a system for social opportunities. There is lack of initiative to focus on unemployment even in richer economies. The effort has to create a force so that benefits of liberalized economy reach the socially deprived.

Information society context: Information society presents a spirit of globalism with gradual disappearance of oral and traditional cultures and a quest for new cultural order, which goes beyond simple notion of information and communication.

The Monist mode of globalization of economic, political, and cultural global processes creates global integration by creation of coherent set of values and norms and discouraging divergent norms and perceiving deviance as threat to stability. But we require a pluralist mode of global integration that demands a global communication order that supports the creation of global civil society. It is a self-organizing civil society that transcends the national borders and facilitates people oriented communication to accommodate multipolarity of current world society and diversity that can be shared.

A serious discussion has started on globalization. World Bank development research director Paul Collier (2000) remarked, both sides are on extreme. At each end of the spectrum are ideologues that are pushing agenda unrelated to reality. Since the battle for market-driven economy has been won and the flaws of trying to force every country into the same template has become clear. It is time to forge a more enlightened consensus to take globalization to the next level.

Cultural globalization or Cultural imperialism: Cultural imperialism scenario focuses on the model of center-periphery relationships, and historical patterns of domination. There is ubiquity of Western cultural goods. There is direct cultural imposition from the Western world.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

human rights standards. Acknowledging that too is a huge change. Until just a few years ago a very few companies were doing that.

World Bank shows that big oil projects can make money both for investors as well improve the lot of the poor. If the activists make the oil pipeline a centerpiece of their war against globalization, it is the poor in the region who would suffer the most (example Chad oil pipe-line supported by World Bank collaboration).

When governments commit to make guidelines work, then there is a good chance that the global capitalism of the 21st century will be guided by the rules under which everyone can prosper.

Economic context of globalization highlights that global communication industries study ways of customizing or innovating products suitable within geo-linguistic or geo-political regions. The local level producers are drawn on the global codes and conventions.

The information and entertainment products champion predominantly the western ways of life, and values of capitalism and individualism. But there is exposure to different lifestyles of the world people.

The enhanced and diversified trade and commerce markets usher countries into new economy. Unequal center and periphery relationships, hegemony *vs.* rivalry, upper and lower class structures, and uneven cyclical developments affect world economy.

The ideological categories and labels offer ideological self-satisfaction but impede and obscure the analysis of material real world, economic development, and real rather than ideal alternative choices it offers yesterday, today, and tomorrow.

There are three major trends that are shaping the future of the world. First, there is wide proliferation of the modern information and communication technologies. Second, there is increasing democratization of the social systems around the world. The third trend is the intensifying global expansion of mainly western-based corporations. Thus the convergence

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

the first to communicate on global basis). Modern satellite technology facilitated media globalization.

Tehranian & Tehranian (1997) addresses the contradictory role of the media as a source of resistance to globalization, protector of capitalism, agents of democracy and vehicles for advertising and commodification.

Media-flow equals to international communication. It can result in media Imperialism, globalization and glocalization. Glocalization perspective appears as an alternative to media imperialism. Glocalization is composite of globalization and localization. It holds that the process of social change is union of both homogenization and heterogenization. It is interplay between local and global.

The media glocalization thesis holds that the process of media flow is the dialectic of global homogenizing and local heterogenization. The outcome of globalization and localization are cultural hybridize. Robertson (1995) suggested that media-flow studies spell out the ways in which homogenizing and heterogenizing tendencies are mutually implicative.

Media-flow suggests that we are dealing with the type of cultures that have definite geo origins and then have spatially expanded. Media-flow analysis is concerned with interaction between societies and not within societies. We study media as a form of communication and as a setting between cultures.

International influence on Media systems: Media peripheralism refers to societies and cultures reflecting a real and perceived dependence on transnational media systems. Both rich and poor periphery societies depend on media peripheralism.

In a periphery, links between the media and the power structures are close in a system that is predominantly based on private ownership. There are close links between the media and the politico-economic-power structures in a periphery disregarding ownership forms.

In poor periphery, countries may be dependent on transnational communication systems. But in these countries even the scant mass communication may represent higher degree of genuine locality and relevance and take strength

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

12

Information Communication Technologies Perspective

The real danger is not that computers will begin to think like men, but that men will begin to think like computers.
—Sydney J. Harris

Information Technology (IT) simply means information or a new idea for doing something that transpired through technology. It is becoming an important factor in the new growth theory beside labor and capital.

Information technology allows information processes to be accomplished much more efficiently, and thus can be used to raise the productivity of information workers, and indeed of most work. As with any technological innovation, there will be winners and losers.

To-day, information communication technologies (ICTs) have significant role to play in all walks of life. They have been both evolutionary and revolutionary, and giving connectivity both in personal and professional life of people. The present scenario is that all technologies are integrated and converged which provides holistic information connectivity.

The social and economic repercussions of the advances in ICT will be so great that the term "information revolution" is probably justified. On the one hand, technological progress is so fast that basic ICT services may well become universal and pervasive even in poor societies. On the other hand, developed countries spend many times more per capita income on ICT than do poor countries. They spend more on the high end ICT. Thus while ICT offer unparalleled opportunities to meet basic human needs in poor countries,

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

by 1440). The press used by Gutenberg was a hand press, in which ink was rolled over the raised surfaces of hand-set letters held within a wooden form and the form was then press against a sheet of paper. The Gutenberg press with its wooden and later metal movable type printing brought down the price of printed materials and made such materials available for the masses. It remained the standard until the 20th century. During the centuries, many newer printing technologies were developed based on Gutenberg's printing machine e.g. offset printing.

Thus, intellectual life soon was no longer the exclusive domain of church and court in Europe, and literacy became a necessity of urban existence. The printing press stoked intellectual fires at the end of the Middle Ages, helping usher in an era of enlightenment. This great cultural rebirth was inspired by widespread access to and appreciation for classical art and literature, and these translated into a renewed passion for artistic expression. Without the development of the printing press, the Renaissance in Europe may never have happened. Without inexpensive printing to make books available to a large portion of society. Shakespeare, from rural England in the mid 1500s, may never have been inspired to write what are now recognized as some of history's greatest plays. What civilization gained from Gutenberg's invention is incalculable

The literary world was changed with the invention of movable type and its application to a series of known practices that were integrated into a method of mass production. Gutenberg's name does not appear on any of his work but he is generally accredited with the world's first book printed with movable type, the 42-line (the number of lines per page) Bible, also known as the Gutenberg Bible or the Mainz Bible (for the place where it was produced).

In three decades, printing spread across Europe where it became one of the chief means by which the Renaissance, the humanist re-birth of interest in learning and the classics, was transmitted from culture to culture. In time, the printed book became a means of political revolution, the necessary technological corollary for the rise of the vernacular (i.e. non-Latin) as a vehicle for literary texts, and the larger democratic revolutions of the eighteenth century.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

roles of public service broadcasting amid increasing competition from private services, and changing preferences of the audience.

Public service broadcasting is vital to promoting democratic rights and responsibilities of its citizens; and the social, cultural, and economic aspirations of their society. The major concerns are for fair competition for growth and expansion. Should public service broadcasters be more profit-driven then policy-driven? Should they have only pro-social program and not infotainment and entertainment? Should private broadcasters share more in addressing public service objectives or purely entertainment channels? Is autonomy the key for survival of public service broadcasting? What are the challenges and opportunities related to autonomy? Will public service broadcasters compete effectively given more independence? Is there a more effective system to ensure its growth? What challenges and opportunities the private operators will face with government control and audience demands vis-à-vis its growth?

Regulating the quality of commercial private services raises concerns about key elements of quality programming. Are they better achieved in a regulated environment? What financing strategies can be adopted to ensure program and business viability?

Governments' role is also important for regulating broadcasting programming, ownership, financing, and technology. The concern is whether less government control in broadcasting will enhance the quality of public life, empower individuals, and social groups to participate fully and equitably.

Broadcasters need strategies to address audience needs and their changing preferences. They have to decide whether priority should be given to local or imported programs in order to capture bigger audience share.

Digital age is further posing challenges and opportunities for broadcasting. The issue in which new digital communication technology is going to benefit broadcasting, impact programming, and manpower needs. Further, the multi-channel age creates competition.

Digitalization in broadcasting and the growing use of satellite communication technology has provided the

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

World Wide Web; a system of Internet servers that supports formatted documents in CERN lab in Geneva. For people outside the computer science field, the key development was in 1994 invention of the Mosaic web browser, a forerunner to Netscape that combined text and graphics to make the Internet accessible to ordinary people.

Less than a decade and the technology has changed from being a novelty to integral part of everyday life. Its reach and applications are ubiquitous. It has become central to businesses, enabling real-time communications with customers, suppliers and partners. To some extent, the Internet is a tool that allows people to do things cheaper and faster. It is transformational. It allows you to do things you could never do before. The tremendous increase to information (and disinformation) generated by Internet has also resulted in Knowledge revolution and its attendant creation of virtual communities and disembodied publics.

The late 90s burst obscured the rapid progression of the Internet. But the current build-out marked by a proliferation of mobile Internet devices, the spread of Internet protocol telephony, and the emergence of spin off technologies will refocus attention on the Internet.

Despite such changes innovation remains at the center of computing and IT industry. Currently, *five technology themes are challenging the economy*. One is wireless and mobility through technology. Wireless networks including LANs have become more pervasive and they are changing the way individuals and companies access and use data. An array of new technologies and devices including PDAs and its applications are making it possible to tap into data including Internet anytime and anywhere. Two, enterprise infrastructure, enterprise resource planning (ERP) and customer relation management (CRM), procurement, logistics and supply chain management are becoming crucial to today's enterprises.

Third is Information security, The Internet and the increasing use of the digital data has fueled the need for a wide range of security solutions including virtual private networks (VPNs), firewalls, biometric devices, file encryption, and advanced network monitoring.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

set, which means that one instruction operates on multimedia blocks allowing parallel processing. The PSS solution allows for higher processing speed while using lower MIPs, thereby using less power.

Computer software is the main ingredient — the integral component in the hardware computer to make it work. In the last two decades computer software technology has progressed variously in its applications. Newer software is written for tasks in different domains from business to medical facilities, to running e-mail to blocking the spam mail and anti virus protection etc. or even running the washing machine. Without our realizing computerization has become an essential part of our lives like pen and writing.

Software has always played a big role in getting voice and data from one place to the next. But the proprietary programs that were built into the networking hardware itself have now escaped those boxes and landed on computer servers running standard operating systems such as Windows NT and Unix. The first step in this direction came two decades ago, when services such as toll-free calling were first run through computers connected to the phone networks. But today software is more powerful because of change brought on by shift to Internet Protocol and data traffic. In essence the computing world – where software drives most functions – has invaded the traditional telecommunication landscape, and it is taking over.

The result is that the gear makers are able to add more sophisticated features to their products faster, and operators can upgrade their services without having to spend large amounts to change their hardware. 40% of telecom operators' expenditure is related to software as compared to 30% for hardware. Software has become the silent partner for everything. For instance, Swedish equipment giant Telefon AB L.M. Ericsson has shifted many of the features which used to be part of its AXE switching hardware, which controls the traffic on voice and data networks, to server-based software. Those systems include basic system-level call control and other services such as call waiting, call forwarding, and management of virtual private networks. Lucent Technologies Inc has recently put a product *Softswitch.* It is a software-based system that

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

Even they may shun writing with hands! These concerns were true for calculators and television exposure at one time.

Concern 2: The computers have changed the way we live and work. They have become vital part of our lives and work, schools and businesses. Now every one uses computer technology on a daily basis. Many people think this is good thing and computers have made our lives and jobs easier. Others believe that computers are not so great. That is because in some industries computers may be taking jobs away from people. Workers are concerned that someday robots will replace them. Do you think computers should replace people, or they are just a valuable resource that we can all work with?

Concern 3: Expression Vs Regulation. We have the right to speak our minds, even if the words are hateful or distasteful to some. The freedom of speech is guaranteed by Constitution.

The Internet raises new questions about our right to 'free speech'. People post words, pictures on line to exchange information and seek response. These words and pictures are stored in huge databases, available to anyone who has the technology and is able to find them. Parental concern about what is found online and the ease with which children can find inappropriate material are very real.

Although the Internet service providers reserve the right to disconnect people who abuse their services, some people feel that controls on language and topics are too loose. These people want tighter controls and more government regulation. Other people argue that free speech should apply to the Internet just as it does to newspapers, television and other media.

With which position do you agree?

Fourth revolution focused also on telecommunication that was stimulated and advanced by advance wireless and cellular technology and advancement in computerization. Telegraph, telephone and cell and wireless technology and computer are the four main pillars of telecommunication.

More than a century ago a seed was planted in the spirit of bringing world closer together. The seed prospered - growing to shape the way people interact with each other in global telecommunication. Telegraph and telephone gave people

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

essential part of life of consumers and they are ubiquitous rather than status symbol in these countries. SMS messages on cell are useful, cost effective and are boon to the hearing disabled.

The Internet on cell phone is likely to have a huge appeal; but surfing the Web on the phone is impractical on the tiny screen. So designers have come up with a micro browser that let the users surf for information by pressing a number on the dialing pad instead of fumbling with a computer mouse. Typing e-mail (on phone screen) is a hassle even with the latest technology; voice recognition software will enable users to dictate directly to their cell phones.

Cellular technology has great telecommunication potentialities. Cellular phones are expected to grow worldwide usage to nearly 100 millions by the year 2000 and increasing substantially in years in developing countries because of accessibility and affordability. More and more developing countries are introducing cellular phones with new features suiting to their consumers' indigenous needs. They could bring down to affordable prices and accessibility and thus add on millions of consumers and with stiff competition from many players in the field due to liberalized government telecom policies in these countries and less restrictions for import of technology.

Cell phones have added applications from sending SMS to e-mail. It is keyboard, camcorder, TV, videogame, MP3Player, camera, and etch-a-sketch and GPS (providing location information for emergency calls). The new software development has exploited the possibility of video, sound, messaging, and color screen technology. Even with these new applications cell phones are becoming smaller and smaller in size.

Pagers blanket the world in many places as a substitute for inadequate or non-existent telephones services. About more than five millions are in use in China and India currently and consumers for cellular telephones and pagers are likely to go up day by day because of better connectivity and affordable prices and easy availability. This can be evidenced by explosion of cellular phones, pagers, portable computers, e-mail users,

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

as Britain's Amigo, France Bull, Italy's Olivetti are crushed by American competition. Also European use more of mobile phones and Americans are hooked more on computers at home and in offices. One reason is Europe's more cooperative approach to technical issues: In 1991 manufacturers, network operators, and regulators all agreed on a single digital standard called GSM (global system for mobile communications). It spread quickly to Hongkong, Australia, etc. This gave Europe a competitive edge in the global market place. The US companies chose a variety of incompatible standards that made it hard to use a single phone while traveling from New York to Los Angeles or from Boston to Bombay. The fact that European companies have the volume benefit of a standard applied in more than 100 countries gave a kick to the whole industry and lowered risks.

Two other marketing innovations have helped boost demand in Europe. Phone companies there quickly realized that people would leave their call phone switched on longer if the cost of the call was paid by the caller and not by the receiver of the mobile call. The opposite of the system is common in USA and India. The US economists realize that the US business model - subsidizing the cost of the phone handset in order to lure customers to sign up for the service is less appealing to consumers than an approach by which customers pay full price for the phone set but get cheaper talk time.

Once the preserve of business users, cell phone has become everyday consumer appliance — even a fashion accessory, a status symbol in Asian countries. Alcatel claims to have 10% of the world phone market with cheap handset available in rainbow colors. Nokia reports half of its (Finland's) population about 5.1 million uses mobile phone to manage their daily lives in 1998. It is assumed that 100% market penetration will be achieved in the next five years.

Since 2000, cell phones by many big players in the field connect India heavily. It has added many indigenous applications and features in the cell phone services. This has made cell phones affordable and useful in India. Even a roaming real estate agent or a car mechanic or a plumber

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

analog system to digital or going directly to digital system skipping the analog phase.

Digital phone systems will translate sound into electronic pulses that register in ground station computers as zeros and ones. A 'call hand off' will pass the pulses from one ground station to another. A 'Doppler effect' detect when the signal is weakening, the system than begin phoning the next ground station to transfer the call when the airplane gets close enough. The most important is before the calls get disconnected; this sophisticated technology can switch calls back and forth between ground stations when necessary.

A second big advantage of the digital technology is its ability to screen out background noise. The ground station computers are programmed to recognize voices as opposed to things like static and whooshing. Similarly ground computers are programmed to recognize word patterns. If there is a blip, they will fill in synthesized voice thus making up broken conversations whole again. This brings up two concerns about digital: synthetic voice gives a metallic quality and the technology causes the kind of voice delay that makes many users uncomfortable.

The concept of global cellular communication using intermediate-circular-orbit, and low-earth-orbit offer a hope for rural communication for rural areas in developing countries. Four mobile satellite operators — Globalstar, odyssey, Iridium, and Immarsat ICO are developing such systems to offer a global system by 2000. (The APT yearbook 1997) the current cost of such global cellular is beyond the reach of rural folks.

Personal Communication Services (PCS). This is another kind of micro-cellular digital network, which use low power and high frequency radio waves. Current cellular transmissions move from cell to cell geo unit. Each of which is equipped with high-powered transmitter. Micro cells will be much smaller, allowing phones to use less power and smaller batteries thus reducing the size and cost. Low power also means the ability to use the entire frequency all over again in each micro cell transmission area. PCS networks will be twenty times as efficient as existing cellular analog systems and provide much better services and quality.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

chips are in the market but they are not as nearly sophisticated as chips inside a personal computer whose processor contains billions of transistors. Still the technology is advancing fast and in five years mass-produced versions can slash the cost of voice and data networks and could eventually become a new gateway to deliver high-bandwidth movies, music and games directly to homes. The possibility of miniature optical circuits has drawn interests from computer-chip manufacturers. If telecommunications components can be manufactured from optical chips than computer-processor performance may double. Developments in optical chips may add intelligence and reduce cost.

Optical chips are not a new idea. In 1969 Bell Lab engineer Stewart E. Miller envisioned, 'guiding laser beams on miniature transmission lines' using the same manufacturing methods as for integrated circuits. But due to technical challenges, his ideas were goals rather than accomplishments. Today, many of those issues are solved but still real product is still challenging.

In 90s the world was going through *fifth communication revolution* of digitalization supported by computerizations resulting from the convergence of communication satellites. It exploded the information revolution and changed media technology perspective in information, entertainment and business by introducing new devices and new modes of communications.

Digitalization

Digitalization converts all information — text, sound, and pictures into binary codes that can promptly travel through a global network of computers linked by telephones, fiber optics, and satellites. Miniaturization has been the driving force in the digital revolution, yielding faster, smaller and better computers every year.

Digital Media: Entertainment plus Technology

The technologies have changed the way we act and interact. The growing integration between digital devices and the widespread use of Internet and wireless communications have altered the way we view personal computing, entertainment,

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

Shuji Nakamura of Nichia – a company based in Japan in 1994 made marketable blue LEDs. He is the leader in Blue laser development through gallium nitride. What silicon did for computer chips; gallium nitride is doing for blue laser.

Making the Blue lasers continues to be a challenge because gallium nitride is very hard, very strong, but difficult to synthesize. It takes temperature of 1000C to grow gallium nitride crystals. Nakamura could find a way to reduce the temperature to 500 or 600C by working in a nitrogen-hydrogen atmosphere. This way defects did not spread throughout the crystal. Nichia is expecting to start selling samples of high-power laser diode in October 1999. Nichia's laser lasts 2000 hours. It is necessary that a laser have a lifetime of 10000 hours to put in a commercial device.

Since the Laser invention in 1960, researchers have been hard at work looking for more useful applications of the technology — mainly for the good of the humanity. Today, lasers are familiar part of everyday life, used in everything from surgical instruments to supermarket checkout scanners to compact disc players. Laser is creating information revolution. It has the ability to send billions of telephone calls along beams of light using fiber optics. Beside telecommunication, laser has created and revolutionized laser printing, laser CDs, laser surgery, and laser diamond cutters and other metal cutters for the industry. They are also used by Military in designing weapons of destruction. The next generation of lasers may open new realms, as they become microscopic as well as gargantuan.

As you get to the shorter wavelength, you get a big increase in data storage. For example, the blue lasers would give Xerox the ability to print with smaller dots, and to cluster more individual lasers together giving better resolution and faster speed. The blue diodes can aid in the building of new medical devices. Already dentists are using blue light to harden the fillings or whiten teeth. The blue laser under the right wavelength can find cancerous cells. The military would like shorter wavelength lasers to apply similar fluorescence techniques for detection of chemical and biological weapons. The light blue-green color allows underwater communication between submarines.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

rural telephone exchanges are not set up in most of the rural and remote areas. Cell phones give them connectivity.

The conventional electronic media of radio and television has been on the rural scene for decades for entertainment and pro-social messages from national channels. Cable technology available to rural areas has further enhanced the potentialities of TV medium for exposure to international news, views, life styles, behavior and attitudes and multitude of events that directly or indirectly impact their lives.

ICTs Perceptions, Visions

The decade of 2000 onwards is the era for consolidating and updating advancement being made through the six communication revolutions. The media of print, radio, television, telecommunications, computers are all forging ahead in its varied advance forms. Even the oral traditions are benefiting through these advancements. The oral communication through various modes of telephony, online communication through Internet have given new perspective to interpersonal communication

This is the global communication scenario. Many countries including India fit their communication scenario within the framework of these contexts.

Gore (1996) emphasized the five core principles that global community must ensure to accommodate the best information network that is prerequisite to participate in communication revolutions. These are private investment, competition, flexible regulation, open access, and universal service.

Irving (1996) says that developing countries can and must become a part of the information age and have robust telecommunication and information industries. The developing countries have the potentialities to leapfrog into sophisticated technologies such as satellites, and wireless. The governments can create a structure that would enable its citizens to use these technologies to improve their quality of life. Knight (1996) endorses Irving's views and asserts that those countries that fail to embrace the revolution are bound to become further marginalized and left out. Knight contends that developing countries must build new learning systems, mobilize

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

impact of networked society is expected to be less travel and less polluted cities.

The success of Internet has been triggered by the technology rather than by human endeavor. The speed at which people have adopted the Internet is at far faster rates than adoption of previous technologies such as telegraph, radio, television, video and fax. Fast adoption has been driven by rapidly improving technology in all the key areas—telecommunications, computers, storage bandwidth, digital cameras etc. This is accompanied by equal fall in prices in real time.

Digital-divide has become a common term to describe gaps between the rich and poor in the effective access and use of information technology. Most policy-makers, researchers and practitioners could at least agree on one point that reaching the poorest of the poor is going to be the most difficult of challenges. Even reaching the so-called 'ordinary' poor would entail challenges of electrical power, telecommunications connectivity, human resources infrastructure, and the like. A major barrier to the use of IT tools today is limitations of human skill competencies.

Digital-divide is the pervasive theme of 21st century. Can it be bridged? Most social problems of this magnitude are debated openly after the event. The conscience of the world is stirred and remedies explored when the global developments produce social chasm in health, wealth or gender. Therefore, digital divide is not unusual. A solution is being sought in real time while the revolution is being unrolled.

Attention needs to be paid to bridging the rural digital divide and digital divide between those who can afford access to the new technologies and those who cannot.

Actually there is no single digital divide but lots of overlapping ones; between old and young, men and women, rich and poor, rural and urban blacks and whites, northern hemispheres and southern hemispheres, and above all between developed and developing nations. Yet the creation of a vast new underprivileged *digitariat* seems inevitable unless dramatic action is taken. (More about digital divide in section ICT and education in later section).

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

nations and are becoming more affordable. Computer hardware will be more affordable especially low priced devices developed for markets in developing countries. Software will be more affordable as the markets are expanded for commercial products and as more 'open source' software becomes available. Telecenters and other approaches for providing community access are being invented, business plans for shared access services are improving and helpful telecommunication policies are promulgated more widely. Together, these trends will encourage the continued expansion of Internet. Community radio offers new local radio service, and television reaches larger audience in rural areas including women.

These trends will empower women with more information services, with more information and with more voice in public affairs.

While ICT infrastructure will be more affordable and available, Will women have access to them? Hafkin Nancy *et al.* (2001) study indicated "women are 22% of all Internet users in Asia, 38% in Latin America and 6% in Middle East". Another Study (2001) found that fewer than 20% of people cited in media in southern Africa were women. In some countries women have limited physical access to telecenters and other shared facilities. Even where social and cultural practices allow access to expanding ICT infrastructure, women access may be limited by preexisting inequalities in income and education. The cost of ICT is often less affordable to women than men. In some countries, rural women do not have access where ICT infrastructure is sparse or non-existent. More often they are limited in their use of national or cosmopolitan languages and thus more limited in their access to text content. A review of World Links Programs (2002) noted that, "domestic chores, culturally-imbued feelings of shyness and traditional rules forced many girls to have less access than boys to computer labs".

In some cultures women are not permitted to have face to face contact with men other than those in their own families; or are expected to stay at home or isolated in restricted living facilities. For such cultures, communication technologies may empower women. Telephone, radio, television, and the Internet

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

economic impact'. It is paradoxical for developing nations. Poor countries are constrained to spend less portion of their GDP on ICTs as compared to rich countries. Therefore, the impact of ICTs is delayed and smaller than in rich nations. While basic ICT services and infrastructure are being rolled out in developing nations; the digital-divide in high-end ICT is increasing between rich and poor nations. Rich nations tend to spend a greater portion of their GDP on ICT then poor nations. Since in developed nations the market in many of the basic ICT is essentially saturated, so they are spending their ICT budget on high-end ICTs while poor nations are still struggling to provide basic services.

The ICT technological revolution has high and improving total factor productivity in ICT industries — ICT infrastructure and producing ICT goods and complementary services. The growth of these raises a rapid increase in the TFP of the economy. As technology is put to work, efficiency in primary and other manufacturing and service industries is improved. This encourages employment of labor and capital. There is economic growth if TFP is improving, and there is increased investment in capital and labor. Growth is enhanced in sectors that are able to increase TFP utilizing ICTs.

Some developing nations built export-oriented ICT industries to have significant micro-economic impacts. Costa Rica stimulated its economy by attracting Intel facility for production of microchips. India is developing a software industry and exporting a significant portion of its products. It is developing ICT based industries producing 'back-office' services such as customer services, accounting, medical transcriptions, radiology etc. for foreign and international corporations. These are outsourced from home countries. These provide jobs. Thus there is interplay between ICTs and economic development.

ICT innovations have triggered complimentary innovations in society. For example, microchips in automobiles and other manufactured goods. The effective utilization of the potential of ICTs restructure the markets and other institutions in which those enterprise function. For example, efficiency of transportation combined with ICT innovations has enhanced the efficiency of the manufacturing enterprises.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

and vaccines. Genomics, proteomics and other emerging fields are based on automated lab equipment and powerful computer analyses. The research work is planned, tracked and analyzed *via* ICT. Developed countries are doing much of this work but some developing countries are entering the field. Even applications of ICT in bioinformatics done in developed countries may be critically important in meeting the MDG. Epidemiological research ranges from geo tracking of epidemic or emerging diseases, to the incrimination of the source of an outbreak of a food-borne disease, to analysis of long term trend of diseases, morbidity and mortality. ICT can facilitate these researches in all its forms.

Health policy should be evidence-based, informed by epidemiological research and health service statistics. An understanding of public concerns and attitude of key stakeholders — including the public health workers, employers, government and civil society organizations, should also inform it. The policy-making process is broadened *via* ICT, and it becomes indispensable in compiling public information for determining the public health policy and its options. Communication media can be extensively used for public debate on health policies, and mobilizing public support. Targeted groups can use specialized interactive media such as telephones, e-mail etc. for effectively communicating their views to the policy-makers.

Health facilities serving affluent populations will have more and better ICT than those serving poor. Often the pattern will reflect social barriers in the society such as distributing technology to benefit rich rather than poor, men rather than women, urban rather than rural populations, and dominant rather than peripheral ethnic groups. Even powerful politicians may better equip their constituencies. Generally military health facilities are equipped well in developing countries than public facilities serving civilians.

Our discussion suggests that a huge variety of ICT applications can affect the health services. The applications are growing rapidly worldwide. The most salient point is resource constrains about diffusion of these innovations in developing countries. There are not enough ICT experts, not

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

a specific culture as well comparisons with other cultures. Moreover, cross-cultural imagery research can facilitate or impede cultural and international understanding.

The migrants and the host societies face issues and constraints that have changed with the development of complexities of human existence over time. The physical and technological means of communication have brought human beings closer to each other with a universal outlook for solving these issues. At the same time, it has become critically important to the political, economic, and social realities and to the vitality of the world's multicultural and mono-cultural societies to describe, understand, predict and control diverse cultural behavior across the world.

Communication competence is important in managing the intercultural communication process and cultural diversities by the immigrants and sojourners in any culture.

The journey through diversity of cultures, and the human endeavor to acculturate in novel cultures in unknown lands with unknown people facing individual and social constraints is unique. The issues of cultural identities, multiculturalism, cultural dilemmas, and influences perhaps pose far more reaching practical concerns. An integrated perspective for intercultural communication through dynamics and challenges for cultural diffusion is significant.

The cultural uproot willfully or forcefully create dilemmas, cultural identity crises and transculturation. The technology and media connectivity not only *exposes* people to global cultural ways but also *diffuse* the same to a global audience. It also stimulates people to migrate to attractive cultures. Somehow, the cultural globalization does not create a 'monolithic culture' but unique cultural ways are shaped through the process of diffusion.

The pragmatics of cultural diversity and the phenomena of cultural invasion and domination by other cultures through media and technology create cultural dilemmas, crisis of cultural identities and related tensions. Technology and media are the ideological apparatuses through which *cultural invasion* and *domination* may take place.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

a particular set of relationships and learn to act in set situations. We learn through culture-specific language.

We find it advantageous to use the concept of culture as 'resources'. These resources are embedded in an individual's logic for meanings and actions. Conceptually, cultures can be compared in terms of their resources for compatibility or incompatibility. Procedures for repair, when these resources are negated or violated, and different configurations of these resources suggest different interaction settings within a culture and between different cultures. Interaction settings differ in the degree to which members draw upon culturally shared (as opposed to personal or inter-personal) resources to obtain coordination and coherence.

We live, do things, think and act in varied ways. These practices are particular ways that give us an identity. These are our cultural ways and give us cultural identity. Cultural ways are our resources and when we communicate within our psychological and cultural milieu, through our particular resources, we create explicit or implicit mutual understanding. The prime dynamics of culture are a unique social perceptual set with co-ordinated meaning and action, and cultural variance.

The differences in communication performance and the diverse forms of communication can create diversity among various cultures. People who live in various cultures and historical epochs communicate differently and have different patterns of thoughts.

Pearce (1989) presents three forms of intercultural communication: Co-ordination, Coherence, and Mystery; whereby we experience different ways of being human. The particular forms of communication shape the social institutions, and cultural traditions through which people interpret their environments and experiences. Human communication presupposes the existence of a vast reservoir of cultural habits and practices and derives their communicative power from them. The Coordination occurs by intervention when (intercultural) communication patterns break down. We interact with fellow people and interpret our culture and the world around us by Coherence. There is 'Mystery' that reminds us that there is more to life than the facts of daily existence. All

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

communication phenomenon. It is important to know and understand these since it is necessary to know and understand the cultures in right communication perspective for wider political, social, economic, educational, business and technological ramifications.

Cultural Diversity in meaning and action is created by cultural variance variables. Understanding of cultural diversities, facilitating cultural understanding, and communication effectiveness depend on knowing these variables in the right perspectives.

The interaction of various variables among diverse cultures is *Intercultural Communication*. Our cultural resources give us cultural identity. Culture specific images interact in multicultural settings and create inter-cultural images. Another way through which intercultural images develop is through our stereotypes and prejudices. Moreover, some time knowledge through inter-cultural communication helps in changing these images.

Ideal global culture is where voices of all cultures and people are heard with equal clarity, where no one culture should over-shadow another and where pride in one's own culture only increases respect for the cultures of others; and the diversity of cultures would express different visions of the world. But in reality, among various global cultures, the cultural ways and values of the predominant cultures dominate the cultural scenario.

We are not the same. Our diversity is our heritage, our strength, and our unique speciality. Why not take pride in these differences and celebrate, not subvert them. They nurture, define and sustain us. They give us roots and a sense of belonging. They make us feel special; and in this mammoth and indifferent world special is what we all yearn to feel. But in real world, diversity can have advantages as well disadvantages; depending upon how the cultural group is placed.

Cultural diversity may be in region, ethnicity, neighborhood, life styles, age, gender, mental, and physical abilities; or in professional goals, and learning styles. Our similarities allow us to come together in a common effort.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

deeper day by day that varied cultures are either losing their boundaries or their boundaries are overlapping. Therefore, it is not possible to protect one's own cultural values from extraneous cultural influences.

Globalization on one hand presents few scenarios. The diverse cultural resources are integrated. The expectations of world are coming closer both through visual and personal contacts. These two factors create international understanding. On the other hand, there is anxiety, that dominant cultures may impose their cultural values, life styles, political, economic, technological, social, and educational systems.

In olden days, the cultural influences occurred through interpersonal contacts by explorers, missionaries, and visiting dignitaries. Since the 'contact influence' used to be over a period of time, and therefore subtle; it never seemed to create stress and anxieties. Only immediate rejections of the interpersonal situations were part of the scenario those days.

The new communication technologies both electronic and ethnotronic have currently changed the entire scenario as far as cultural invasions and ensuing threats are concerned. The extent and intensity of media exposure, as well exposure to other communications technologies; and the interpersonal contacts through these technologies have brought diverse cultures closer to influence one another more speedily and simultaneously; and both with positive and negative impacts.

There are political and social impacts of cultural invasions. Some cultures handle it by censoring the media program contents, and by scrambling the media channels. They may bar the interpersonal exchange of people so that they are not exposed to the alien cultural influences. Other societies may make efforts to counteract by giving more healthy mix of their own cultural resources in order to create interest, achievement, and preservation motive for their own cultural identities. They also try to counteract the alien values by presenting their own cultural values in the right perspective and aggressively promoting their own cultural values.

India presents an interesting case study. In late 80's Cable Television started in India by STAR TV Network that is being operated from Hongkong. The program contents of channels

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

While preserving cultural identity, will these technologies erode cultural vitality, internal diversity, and intercultural understanding? Erosion of cultural vitality is identified with a process of stereotyping, a breakdown of cultural forms, and reduction in opportunities for minority cultures.

Hanson & Narula (1990) present 'culture specific' viewpoints of the use of media technologies especially in pluralistic societies rather than taking a global perspective. They argue that function and gratification of media technologies are not applicable the same way universally though the medium may be available universally. Media technologies must be adapted to the needs of the different cultures, and they must be acquired and introduced with a concern for levels and regions with different variations.

They further argue that some people assume that people live in 'split level' cultures created by media technologies. What matters is not the abstract potentiality of media technologies but the value that is attributed to them locally. Technology is not 'constant' but a political, economic, cultural acquisition, with short-term and long-term effects and consequences. There has to be a positive relationship between technology and cultural development enriching the cultural resources and respect for cultural diversity.

Noshir *et al.* (1986) advocate that five value orientations, such as regard for human nature, relationship of man to nature, time orientation, orientation towards activity, and types of relationship among people vary along cultures. These cultural orientations help or hinder the implementation of technological innovations in the first as well in the third world.

Introduction of any new communication technology will have important implications for the culture and the system of social relationships in that society such as, new social roles, ability and readiness of the culture to absorb the new technology, and the work ethics to make that technology work. Further, the technology also affects the psyche of the people. This in turn effects the way people think and act. It alters sense ratios and perceptions. Generally, the effects of technology on culture do not occur at the level of opinions

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

Information technologies should be used to support and promote those rights.

World Social Forum (2004) provided an open platform to discuss strategies of resistance to the model for globalization formulated at the World Economic Forum (2004). World social forum discusses alternatives to dominant neo-liberal strategies, for sharing experiences, and for strengthening alliances among mass organizations, people's movements and civil society.

WSIS (Dec 2003) addressed the issues of local languages and the impact of ICT on cultural identity in local communities. It highlighted the role of libraries in promoting the safeguarding of intangible cultural heritage, as well as building cultural (local and national) identity.

At the dawn of the new era, a vast expansion of human communication is profoundly influencing culture everywhere. Revolutionary technological changes are only part of what is happening. More than ever before, ours is a society focused on communication and civilization centered on images. Ultimately society is communication. Communication technologies have developed audiovisual languages and new forms of rhetoric. The very concept of an audiovisual culture is now commonly accepted. Recent technological developments in a unique manner bring artistic and cultural achievements within the orbit of a great part of the human race.

To sum up *culture* as understood from its varied standpoints is pragmatic, alive and effective when understood, experienced and practiced within the framework of intercultural communications. Development of societies and ICTs applications facilitate cultural and intercultural development.

Summary

The intercultural communication framework addresses the significance of images — self-image, other-image and inter-cultural image expressed through our cultural resources both tangible and intangible.

In context to this framework the focus is on cultural identity, multiculturalism, cultural experiences and influences, and the cultural diversity. These variables create dilemmas and tensions. Cultures make efforts to achieve intercultural communication

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

knowledge economies, health care communications, intercultural communications, development communications, information communications, conflict management and knowledge management.

It is necessary and important to manage both human and non-human communication per se in all sectors of activity and communication situations. Effective communication is well-managed communication.

The focus of management of human communication is essentially the five dimensions: creating awareness, disseminating information, delivery of services, ideas and products, coordinating linkages for both human and non-human communications and better administration of campaigns, services and linkages. Communication competence is needed to manage these five dimensions. Narula (1984) argues that communication competence varies in different environments: of work, professions, social setup and family. The focus of communication relationships in these environments is related to communication skills and behavior of the individual/s. Even within these environments, different sets of relationships are developed according to the communication competence of the individual/s.

Non-human communications focus is on conventional mass media electronic communication channels, information communication technologies in general and particularly computers, Internet and its applications and telecommunications.

Management of Non-human communications channels depends on the availability and accessibility of communication channels. Let us take computer technology for instance. The questions we face: Is it available in 2000 decade in advance forms in a developing society of India? Whether it is imported or indigenous. Will it help managing its information, people's life style, trade and governance better?

Yes, for India computer is an advance communication technology capable of many significant tasks but it will be effective in the areas where it will be managed well by professionals, administrators and people to their advantage. If they fail, they do not make progress viz this technology.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

Civil society needs update information and knowledge of needs of people, resources available, and those that can be generated and required; both media and interpersonal implementation tools; and about the political will of the government.

Government needs local, national and global information and knowledge about the health and nutrition program as a contextual framework for action, creating policies and political will in this context. They coordinate efforts of local, national, world organizations and development community

Thus the effectiveness of the health and nutrition development programs depends on how the information and knowledge of all the stakeholders and participant is shared, coordinated, applied; and how these efforts are managed.

The development community must listen to the voices of multiple stakeholders through their feedback loops to address the needs of users and protect interests of the civil society by the government. Guidance and support is necessary from all the stakeholders. They should work together to overcome the knowledge and digital gap. There should be right to communicate, freedom of access to information, content, and knowledge. Together they must frame issues and discuss the concerns. They should share ideas in individual and group forums to develop connectivity. They must supplement and strengthen other initiatives. *Such efforts will facilitate the way to manage knowledge for development.*

The development community among themselves and at different hierarchy must share the latest research, best practices, and new ideas and evaluate them for effective dissemination of research products. Knowledge sharing is through development of ideas and practical implementation and improving connectivity with sources of knowledge. Analysis and evaluation of information should be shared. Access to intervention and local voices should be facilitated.

We need both local and global information and knowledge for development in any sector area such as health and nutrition, safe water, sanitation etc. Let us for instance take health and nutrition program. Local information is needed to create awareness among the targeted audience about the specific

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

uses appropriate knowledge to improve its productivity and increase welfare. The new techniques and practices (which were not hi tech) created the food abundance through green revolution and milk abundance through white revolution in India.

Knowledge economy and knowledge management are different and connected to an extent. Knowledge economy defines the process whereby a country uses knowledge and converts it into economic gain and welfare improvement. Whereas, knowledge management defines the tools, techniques and processes used by sectors, organizations and individuals to achieve these.

Information society and knowledge economy are different. Information society is focused on information and not on knowledge. It is concerned with the broader context of society as a whole as opposed to 'knowledge economy' that is concerned with knowledge applied for economic use.

The knowledge for development (K4D) program of the World Bank Institute (2003) has developed the following framework to help countries articulate strategies for their transition to knowledge economy.

- An economic and institutional regime to provide incentives for the efficient use of existing and new knowledge and the flourishing of entrepreneurship.

The incentive regime describes the framework within which society and economy works. In the context of knowledge economy, does this provide a context that encourages and stimulates the creation, sharing and applications of all sorts of knowledge? Does it encourage the right level of education and training to support the economy and society's needs? Does it ensure that access to financing is not an obstacle to innovation and there is sufficient rule of law and appropriate intellectual property rights to ensure that creativity is not stifled?

- An educated and skilled population to create, share, and use knowledge well.

Education is the fundamental enabler of the knowledge economy. Well-educated and skilled people are key to creating,

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

social, cultural and religious fields and the activists involved in social movements. These actors are the major variable in any conflict. Other variables are issue fields, tensions and actions that are targeted to escalate, resolve or manage the conflict.

Conflict behavior has both positive and negative connotations. When it is positive and mild; it can increase motivation, energy, create innovation, and highlight diverse viewpoints. It can increase understanding by articulating and supporting arguments. When it is negative and intense; it can rigid the system and distort reality.

Political unrest, political alienation, and lack of basic needs and quality of life may cause discontentment among people. Lack of interactive communication among the people and biased communication perspective can lead to low development, backwardness and mass violence at times. The political conflicts are created by twin factors, exploitation of the masses and political leadership rivalries.

Both external and internal peace issues for national and international community differ from country to country. They also differ in strength of peace disturbance at different points of time. Both, the cause of crisis and ensuing tensions are also country and culture specific. Moreover, the heuristic solutions that these countries will find from time to time will also be culture, country and time period specific because of the unique problems that a country faces through its cultural bindings and at a particular period of time in the conflict generation and resolution.

Variations in attitudes provide basic condition for conflicts. As the number of different attitudinal positions on social, economic, political issues change in a community, higher level of conflicts is likely to exist.

Conflict Resolution: Conflict resolution exclusively has the objective of resolving the conflicts *per se*. Controlling or resolving the conflicting issues can manage conflict. The conflicts need control where they are amenable for resolution.

Misunderstandings in a society are inevitable and it is a challenge to express differences and find reconciliation.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

permits regularity, order and predictability. Non-conformity leads to conflict.

In conflict resolutions and conformity, flexibility of behavior is important. Flexibility calls for alternative in options and alternatives. It sets up a climate that permits people to move back and forth and in and out from one situation to other, but based on facts, data and logic of the situation. This is creative problem solving that creates opportunities, anticipate threats and risks when people fail to react. Thus through flexibility, adjustment to differences and altered circumstances can keep peace and show better results.

Flexibility in communication calls for communication competence. Convergence model of communication and circular communication is necessary in resolution of conflicts. Feedback loops are significant for identifying and implementing the solution/s, and strengthening their own capabilities and skills for coping with the conflicts.

Mass media messages become entangled in conflicts, disputes and disturbances at the local, national and international levels. Communication is impaired by extremely intense conflicts.

The relationship between social conflict and communicative activity in a system may take a number of empirical patterns depending upon the structure of the system. In some systems it may be linear, in others it may take several forms of curvilinear. When conflicts reach an intense level, communication changes in form and shifts from one set of actors to another. Certain types of communication may be inhibited in conflict situations.

In a maximal conflict situation, communication through mass media may be restrained or shifted entirely from mass to interpersonal channels leading to 'communication breakdown' which may actually be 'accommodation to the intensity of the conflict. For example, when negotiations between formal organizations become so conflict-ridden that participants cease talking to each other (and thereby cease being quoted in the mass media), the negotiations at this point shift to different representatives of the organizations. This turning point occurs when the conflict itself becomes the focal point

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

15

COMMUNICATION RESEARCH PERSPECTIVE

There is the world of ideas and there is the world of practice. —*Mathews Arnold*

Communication research has been ongoing for the last six decades to set up communication as a discipline. Since 60s there has been research for newer perspectives in theory, research and practice to enrich the discipline. Researches also advocated, supported and developed different perspectives from which communication has been studied and applied overtime.

Communication research methodology has evolved and developed overtime with the changing communication priorities, functions, audience demographics, media consumption, advancement in ICT and the need and significance of supporting role of both interpersonal communication and media channels. Communication research has facilitated these changes.

The early researches and confrontation with new communication situations stimulated communication research scholars in specific areas of source, audience, message, channels and effects (both mass media and interpersonal), communication rule and contextual research. In fact communication research perspective encompasses the various other perspectives from which communication is being practiced.

Communication research does operate within the broad framework of social science research. But in this section we are exclusively addressing about communication research.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

communication process was labeled *Two-step flow theory.* Those who had more exposure and contact were called *opinion leaders.*

Further, it also revealed that opinion leaders were selective in passing the information intentionally or unintentionally in order to have media power and control. Moreover, some of the messages would get twisted in the process and the intended pro-effect would get lost.

Two-step flow theory lost much of its fervor in 70s onwards as a larger population was having physical and social access to mass media information. Radio and TV have become inexpensive or government was providing community sets. Literacy was also increasing.

Narula (1984 and her later researches) point that many of the development planners in developing countries in India particularly were concerned about the pro-social messages in development in rural areas. The messages won't reach the intended audience as opinion leaders would block the messages or twist them due to vested interests of caste and village factions. To counter it, two steps were taken. One, the community radio and TV sets were provided so villagers have access to mass media messages regularly. Two, the development administration set up a village hierarchy though block development infrastructure, where an official village level worker (VLW) for every village and another for cluster of villages were responsible to convey and explain the mass media messages on daily basis. This 'personal influence' of official opinion leaders was the intervening variable between communication message through the media and the responses made to that message. Thus even feedback loops were set up between the VLWs and villages. The feedback was conveyed back to the development administrators. Such set up helped in doing development more effective and timely.

Even research studies were pointing to the influence of informal social relationships in adopting farm technology and farm innovation messages. Though further research overtime revealed that women were blocked from these messages.

Thus it was through research that two-step flow theory had undergone change and lost its credibility and through

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

with developing a rural model because 90% of population at that time and less later on lived in rural areas. Thus rural model remained a top priority.

During the ongoing decades, the urban slums grew in three tiers — slums within the urban areas, slums in shanty-towns, resettlement slum colonies on the periphery of metropolitan towns (the third planned by government).

The urban areas during these decades ushered into towns, cities and metropolitan (getting more commercial and cosmopolitan). The three geo areas and its people posed different communication issues. But a single communication model has been applied in all the three geo areas.

The nodal points in this model posing problems were: communication networks and patterns, opinion leadership and cohesive nature of rural society. Urban slum and urban areas specifically lack the interpersonal communications networks of Block development hierarchy (formal), and opinion leadership (elected or informal) or any other interpersonal contact points. However, these areas have the higher accessibility to mass media channels.

North and South regions in India have cultural and language diversities and the fact that the social, economic, and political realities are diverse in these regions. This suggests the need for two 'regional communication models'.

Research addressed the necessity of having three separate research models for three geo areas, and regional models in developing countries.

90s decades onwards, ICTs have been overcoming the geographic, regional and national differences. Further communication researches have been highlighting a 'Technology Paradigm' for all. But this 'Technology Paradigm' has its own shades of differences and diversity of models within this paradigm (see detailed discussion Technology Paradigm, section). Ongoing research supports it.

Part 1 through its seven sections discusses the evolution of communication models. Some of these models have been revolutionary. Research has facilitated such an evolution and revolution.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

be 'action' component of the results? Will there be coordination between research findings and implications?

Further, basic characteristics of the society pose post research constraints. These could be basic social structural conflicts of class, casteism and social distance; the close and evasive society facing the pull of traditions and push of modernization and technology. The basic conflicts between the bureaucracy and the masses such as the bureaucratic attitude of 'trained incapacity' towards the masses suggesting that masses are naïve and incapable of deciding what are their development needs; and thus creating learned dependency and distrust binds among them. These create constraints among governance, and communication bureaucracy; and the conflicts between practitioners and researchers.

There has been a three-way communication gap between the practitioners, clients and researchers. Clients create practical difficulties for the researchers to assess the real problems and work out solutions. If researchers pose those problems and solutions to the practitioners and they do not respond well and are indifferent to their suggestions then the clients are likely to distrust them.

Further, low applications of the research as well low credibility of research applications create constraints. There are weaknesses and biases of applied research in developing countries as a problem-solving tool. The practitioners point that only a few of the findings from the research are applicable to the practice. From their point of view the findings are more academic. Then there is confirmation of theories in single variable terms with little applications to the complexities of the real world.

There are other problems, which are not obvious to the practitioners or the conventional researchers. Serious logical contradictions may invalidate many of the questions that research addressed. Particularly problems of method not appropriate for the subject-matter.

What should we make of the fact that research never ends? "More research needs to be done". It is phrase that summarizes the conclusion of virtually all research programs.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

articulated and harmonized. What is proposed as communication policy is nothing new but deliberate prospective formulation of practices already established in society. We cannot plan in any meaningful and realistic way without a clear analysis and articulation of existing structures in a society and their influences upon communication.

The rationales given for communication planning and policy are associated with two broad perspectives. One, the techno-economic perspective and second is the political economy perspective. In the first case, the focus of attention is on technology assessment, innovation, utilization, techniques for increasing effectiveness of communication, and economics of communications i.e. technical and economic efficiency and cost effectiveness. The second perspective encompasses broader socio-political factors that include public needs and participation, access, equity, power and dependency; and changes in power relations in society.

Further, there is need for communication policy and planning due to concerns about inequality of access and utilization of information among different social classes and groups in the society. A vicious circle persists in communication: the well-informed have more access to knowledge and information and seek more information; the ill-informed and socio-economic disadvantaged have less access and do not regard information as particularly important. The pattern of distribution of information is dependent on media (and other channels) policies, planning and production levels. A wide range of factors such as material living conditions, socio-economic structures, ideological and cultural factors determine these in turn.

Communication policies proceed from the analysis and acknowledgement of existing practices and formulation of new principles, and norms for realizing the set goals. The communication policies are reoriented and redirected when analysis of communication policies reveals structures and pressures against individual or even collective goals.

Conceptually, the indicated stages in policy formulation are: policies (existing or planned), planning strategies, operational planning and budgeting resources. In reality,

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

If these conditions are not met then a *conflict of criteria* will result. It reflects differing and contradictory judgments in various circumstances. The decisions may be made arbitrarily responding to immediate political pressures. Faced with conflicting pressures, the decision-maker opts for the choice that intuitively he/she feels has the higher priority and most immediate reward. Mutually inconsistent value frames are likely to coexist, and any number of factors can destroy the integrity of the planning process.

The second set is methodological. This affects planning tools and the planning process. Here planning problems are those of organization and structure. The constraints are of diffusion (when it is thinly spread out, not concentrated, and not concise), inflexibility, and dysfunction. Diffusion and inflexibility arise from defects in the original planning design, from inadequate preliminary task analysis and from overly incomplete phasing. Dysfunction refers to uncoordinated activities among members of the planning team. Therefore, attention should be paid to team selection, group dynamics, and emergence of consensus. Successful coordination can help in overcoming the constraints.

Communication planning and policy processes in different societies are important and equally important are the factors influencing those processes. Both the substance and the methods of their formulations and implementation are legitimate concerns of policy and planning.

Communication Planning Constraints

Constraints experienced by communication planners are of two kinds. One set is related to the status of the communication discipline itself. This relates to the value that is placed by politicians and decision-makers, the attention that it receives from other planners, and the contradictory positions and assessments that result sometimes about communication planning *per se*.

There is qualitative need for well-informed planners with vision. Since this is likely to have impact on the final outcome. For example, communication policies in India are paradoxical. On one hand, they emphasize about self-reliance, on the other hand everything has to be tailor made by the government

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

It is demonstrated further to reinforce the implementation. Thus multi communication strategies can focus on organization and empowerment process.

Diffusion approach to Devcom focuses on adoption of technological and social innovations through diffusion of new ideas, products and services. Diffusion of both material and social innovation is necessary for development. Material innovations refer to technical and economic innovations and social innovations pertain to social needs and structure.

The individual and community decisions about the acceptance and rejection of innovations depend on what is communicated about innovations and how it is communicated. In Devcom context there are three important stages for diffusion of innovations: reorientation, refocus and reinforcing. The innovation is reoriented with changed elements; the reorientation necessitates refocusing of the individuals and communities on the innovations. The innovative ideas, products and services have to be reinforced intensively and extensively by media and interpersonal campaigns. Both mass media and interpersonal communication channels are used for diffusion.

Mass Media and Extension approach for Devcom. A well defined mass media and interpersonal approach (extension) infrastructure is necessary for development communication. These infrastructures should be both socially and physically accessible to people. The messages should be need-based, appeal to people, be relevant to them, and also aimed at the specific targeted audience — rural or urban, urban slum, rich and the poor, educated and the illiterate etc.

Localized approaches to devcom: Communication scholars argue that mass communication produces demonstration effect and such information stimulates for new ways of doing development. Thus there is correlation between media exposure and development variables. Other scholars have expressed that mere availability of any kind of mass media messages is not likely to be useful for innovative changes. The information transmitted must be locally and functionally relevant and relates to patterns of content presented to the audience.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

distances. The essential feature of this strategy is to facilitate physical and social availability and accessibility of the ICT and its applications for effective communication among various segments of society. The digital divide of information, knowledge and learning practices does happen and the efforts are made to bridge the gaps.

E-development applications and strategies are discussed in detail in our discussion of ICT perspective and it has bearing on other perspectives also discussed in the section on Perspectives. E-strategies impact education, information, knowledge, economic growth and productivity. The aim is to reduce physical poverty and social poverty and thereby developing social capital through ICTs and improvement of health. It gives social and cultural connectivity and global connectivity.

Second focus is developing ICT strategies for development. E-development strategies need to be shared by development community. E-development can only be achieved in partnership. The partnership among the four — government, civil society, private sector and academia is important. None can take sole responsibility. The government takes key role and takes a leadership and facilitative role. The private sector plays a crucial role not only in deploying ICT for specific applications but also in facilitating and outsourcing of some government services. Civil society plays vital role in using ICT to overcome the digital divide. Engagement of academia in reflection, monitoring, evaluation and analysis of the needs, situations and tools for e-development strategies, and planning of such strategies is important.

The potential of ICT should not be idealized as panacea for all development needs. It should be rather integrated into the development agenda of each sector, and across all sectors. It should be an integral part of the way we think about development and achieving its goals.

E-development would assess opportunities to use ICT to expand employment and earning opportunities for poor, marginalized groups, in rural areas and women. E-development would aim to enable sustainable development by using ICT applications. This is a powerful development communication strategy.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

creates more unrest and complicates the political issue of territorial occupation of Kashmir.

Two cases mentioned below show how political violence can be disruptive:

India Case 1. Communal outrages and violence against Sikh community were provoked in 1982. In early 80s Jarnail Singh Bhinderwala headed the Sikh national party Akali Dal and asked for more autonomy for Punjab. They threatened to stop paying taxes to the Central government and stop shipment of grain from Punjab to rest of the country. Indira Gandhi attacked Sikh fundamentalists and ordered troops to attack Bhinderwala's headquarters at Golden Temple in Amritsar in June 1982 for 3 days. Bhinderwala and his armed supporters were killed and temple complex was damaged. In the process Gandhi made even moderate Sikhs sympathetic with the radicals. In October 1984 her Sikh bodyguard assassinated her. He sought to avenge the insult to Sikh people, since it was advocated that entering the holy precincts of the temple by the military was sacrilege.

India Case 2. If leadership cooperates for political reasons, they pay heavy price. For instance, Rajiv Gandhi (the Prime Minister of India since 1982) government tried to solve the problem of LTTE (an alleged terrorist group of Tamil Nadu India based in Sri Lanka and India). They have been fighting in Sri Lanka for autonomy for Tamilian origin Sri Lanka citizens. Rajiv Gandhi was killed by a human suicide bomb of LTTE on May 21, 1991, when he was addressing a political meeting in Tamil Nadu in South India. The anger of LTTE was directed against him because of his cooperation with Sri Lanka for solving LTTE problem.

In this context, Indian government is extremely sensitive in attacking the sensibilities of any community outside the country lest it provokes communal outrages. It learnt its lesson after the assassination of Indian Prime Minister Indira Gandhi and moved rapidly to defuse any fall out on the Tamil speaking community in New Delhi in the aftermath of Indian Prime Minister Rajiv Gandhi's assassination.

Social violence is expressed in domestic violence, angry activism and moral violence.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

residential areas at different socio-economic levels particularly where lower income group resides.

This is the story of one of the upscale colonies surveyed. And this can be the story of many residential colonies in Delhi. People were interviewed at random to assess the problematic issues in the colony and suggestions of people about the opportunities to handle them through media power and civil society participation.

The story traced the growth of ICT accessibility in the residential area in the last four decades. The accessibility was from TV in its all phases to Cable TV, video, copying machines, computer, fax, Internet, telephone booths, cyber cafes and mobile phones.

The accessibility of different medium overtime has created increased commerce activity in this residential area market and prosperity for its people. This has changed the shape and face of the colony. The important point is that the growth of ICT overtime and its current status has created an awareness to their rights to demand for better quality of life as well necessity of civil society participation to improve quality of life. The media exposure has given understanding to the residents that they can use the power of new media to improve their quality of life.

People should not just focus on ICTs for entertainment but the awareness and knowledge gained through ICT channels should be geared to improve quality of life through cooperative participation.

They want to experiment. The action plan is to experiment with two ICT channels initially for solving problems of their living conditions in the colony. The two channels are, Cable channel and Internet.

The cable operator in the colony assigns one local request channel. They planned to use this cable channel to post their grievances, issues, solutions to the problems and actions to be taken by one and all.

They planned to harness the power of the Internet in three ways: (a) to further co-ordinate the local actions of the residents, (b) to get official attention to the problems, issues and actions taken for solutions, (c) to know how others around

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

changed communication scenarios, innovations and innovative applications of the old and new technologies for changing people's aspirations and demands.

The developing and developed countries are forging ahead with new ways to deal with communication issues that are arising overtime; through different communication plans, strategies, models and channels. How they deal with it makes significant differences to their lives. Smaller and poor countries are also in the race for development assisted either by developed countries or by international organizations. But the initiative to develop comes from them. Self-initiative makes difference in how communications help them in development.

Here are few instances of political communication, conflict management and communication management of positive and negative communication strategies.

Planned communication strategies are needed for conflict management between India and Pakistan. They planned official peace talks in Feb 2004 after three years (of initial talks on the issues) to resolve the conflicting issues.

Why the urgent need is felt now for the two countries to communicate about the conflicting issues? Analysts and diplomats believe that both countries have recognized the futility of their struggle over Kashmir and the damage it is doing to their domestic political situations. Neither side believes there is a military solution to the Kashmir issue nor war is an option; rather both the countries should find a peaceful resolution of the outstanding disputes between the two countries.

Pakistani analysts believe Pakistani President Musharaf is convinced militants are a threat to domestic stability. Pakistani leaders are using their entire machinery to curb Jihad and this is the worst form of state terrorism. Meanwhile, Pakistani former foreign secretary Khan observed, "the Kashmir conflict is holding back India's aspirations to be a global power. It has become sensitive to its self-image. It has many trappings of a major power...but it feels Kashmir is dragging it down". Another reason is that Musharaf and Vajpayee — the India's (then) Prime Minister are keen to be remembered as peacemakers.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

Another scenario when lack of cultural communication and understanding leads to political blunders and wars. Recently Robert McNamara wrote a book referring to waging war on Vietnam by Americans said that "we went into Vietnam, ignorant of its history and culture and that it had been all a mistake". Like McNamara Donald Rumsfeld went into Iraq knowing nothing of the place and its culture and would not listen to those who tell him. There are perhaps more dissimilarities than similarities between Vietnam and Iraq but once again led by the best and the brightest and bewitched by American power, this country has been swept by hubris into yet another catastrophic quagmire with no end in sight. (Boston Globe 21 Oct 04).

Here is the latest in e-campaign for national elections in India — a developing country in 2004. The parties were using for the first time modern means of communications such as mobile phones, fixed line phones, Internet, radio, cable television channels, e-mail etc. on a mass scale to supplement the traditional forms of campaigning, such as door to door campaigning and public meetings, print medium and advertisements and wall posters to get the message across. The latest technologies were expected to transmit the message to an estimated 15 crore voters, roughly a fourth of the total electorate.

BJP the then ruling party for their campaign (for Atal Behari Vajpayee Ex Prime Minister) planned to flood these channels with a one minute message to the voters from Vajpayee persuading them to give him another chance 'to build a new era'. Besides this message, governments' main accomplishments encapsulated in the 'India shining' campaign was also relayed through mobile and fixed line phones.

The party formed a database of over 2 crore e-mail addresses to which newspaper and magazine articles lauding the government achievement was forwarded at regular intervals during the election campaign (based on news items in the press).

Interpersonal communication channels and opinion leaders can pose barriers to fighting polio in Nigeria. Local Muslim clerics told villagers to reject the polio vaccine because it was

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

APPENDICES

APPENDIX I

Telegraph

Samuel Finley Breese Morse built the first American telegraph around 1835 (the telegraph was also being developed independently in Europe).

A telegraph sends electrical signals over a long distance, through wires. In 1830, Joseph Henry (1797-1878) made the first long-distance telegraphic device — he sent an electronic current for over a mile on wire that activated an electromagnet, causing a bell to ring.

Morse patented a working telegraph machine in 1837, with help from his business partners Leonard Gale and Alfred Vail. Morse used a dots-and-spaces code for the letters of the alphabet and the numbers (Morse code was later improved to use dots, dashes and spaces: for example E is dot, T is dash, A is dot-dash, N is dash-dot, O is dash-dash-dash, I is dot-dot, S is dot-dot-dot, etc.). By 1838, Morse could send 10 words per minute. Congress provided funds for building a telegraph line between Washington D.C. and Baltimore, Maryland, in 1843. Morse sent the first telegraphic message (from Washington D.C. to Baltimore) on May 24, 1844; the message was: "What hath God wrought?" The telegraph revolutionized long-distance communications.

Telephone

The telephone (meaning "far sound") is the most widely used telecommunications device. It was invented in 1876 by (Alexander Graham Bell with Thomas Watson). Bell patented his invention on March 1876. His device transmitted speech sounds over electric wires, and his idea has remained one of the most useful inventions ever made.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

1939 GE demonstrates FM for mobile communications

GE inaugurates FM broadcasting in Schenectady, NY

WLW-AM loses its experimental license and is ordered to return to 50kW operation

Volume Unit (VU) meter adopted as industry standard of program level measurement

The principles of ac bias recording developed

Image Iconoscope developed

TV demonstrations held at World's Fair in New York and Golden Gate International Exhibition in San Francisco

Roosevelt becomes first U.S. President to give a speech on television

DuMont company begins producing television sets for consumers

First baseball game ever televised, the Princeton/ Columbia contest, covered by NBC at Baker Field, NY

First television sets offered for sale in U.S. by RCA, GE, DuMont, Philco, and two other companies

The Nineteen Forties

1940 Paramount puts first TV station on the air in Chicago

1941 Magnetophone goes into regular service on German radio stations

FCC authorizes commercial TV stations

1942 Digital computer conceived

Sarnoff awarded the rank of Brigadier General

1943 Nobel buys NBC Blue Network and forms the American Broadcasting Company

Image Orthicon developed

1945 Orr and Mullin bring German magnetic tape technology back from Europe

FM broadcast band moved to 88-108 MHz

Clarke suggests geosynchronous satellites for communications

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

Electronic line-store (625-405 and 405-625) standards converter developed by the BBC

TV used on a U.S. manned space flight, the Mercury 9

1964 RCA develops complementary MOS (CMOS) technology

Society of Broadcast Engineers holds first official meeting at NAB in Chicago

Intelsat organization formed

Character generator system introduced

RCA videotape cartridge developed

First TV program automation system installed

TV camera placed on board Ranger 7 explorer to moon

TEAC provides slow-motion color video playback system for NHK coverage of 1964 Olympics

Industry committee formed to establish videotape standards, with SMPTE as secretariat

1965 "Early Bird," first international communications satellite, launched (Intelsat I)

1966 First bipolar IC amplifier introduced

1967 PAL/SECAM standards announced

First high-band color disc recorder for playback of short program segments in normal, slow or stop action is used on ABC-TV coverage of the *World Series of Skiing*

First timecode editing system for video, called On-Time, is developed by CBS, Hollywood

Solid state imaging technology demonstrated

Intelsat II satellite launched

1968 CBS uses a portable minicam for political convention coverage

Trinitron tube developed

1-inch Plumbicon developed

First radio/TV business automation systems installed

1969 Instant random-access audio cartridge machine introduced at NAB by IGM Communications

SMPTE timecode established to end the chaos of incompatible time codes for various editing machines

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

FCC issues a Notice of Inquiry to determine the status of advanced TV systems

Enforcement of the "fairness doctrine" ends

SMPTE working group on HDTV approves 1125/60 standards document

NRSC announces voluntary standards to reduce AM band interference

NAB forms HDTV technology center to study future of television

Super VHS (S-VHS) introduced

1988 FCC refuses to reconsider marketplace decision on AM stereo

NRSC issues second voluntary national standard (NRSC-2) for AM radio

Ampex and Sony introduce D-2 digital composite tape machines

Harris introduces DX-25 digital solid state AM transmitter

First Klystrode-equipped 60 kW UHF transmitter goes on the air in Wrens, GA

FCC rules that advanced television systems designed to deliver improved pictures to consumers must be compatible with existing NTSC receivers

Europe's Eureka 95 HDTV system demonstrated at IBC in Brighton, England

NBC proposes a 1050/59.94 HDTV system with the backing of ABC, Zenith, Thomson Consumer Electronics, North American Philips and others

Philips laboratories demonstrates its HDTV system designed for satellite transmission (HDS-NA)

Advanced Television Test Center announces plans to begin over-the-air tests of proposed advanced and high definition TV systems

First improved definition television (IDTV) receivers marketed

1989 American National Standards Institute (ANSI) gives final approval to 1125/60 HDTV production standard

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

New World Information & Communication Order (NWICO) can be best constructed by developing communication competence for the voiceless. Pluralism in voices however requires pluralism in structures of media access. No single system of media control (governmental, public or community commercial) can alone guarantee the plurality of voices. A balance among them might use the expanding channels of communication for an expanding plurality of voices more reflective of the international community.

It calls for free and balanced flow of information among the billions inhabitants of this world who are caught up between the imperatives of pre-modern, modern, and postmodern worlds to which they belong. NWICO may be conceived of as a network of NGOs, to mobilize the global civil society, to empower the urban and the rural communities, to enhance their communication competence and media capabilities, to negotiate with the State and Non-State actors to redress their conditions.

Now that we are freer of the bonds of conflicting East-West ideologies, perhaps the time has come for technocrats — librarians, computer programmers, journalists, and communications specialists to address the problem objectively, and from a holistic, information science perspective. This effort might consist of developing better ways of exporting development information from the rich nations of the North and West, to the poor ones of the South and East, and of importing knowledge of developing countries through development education activities.

For working definitions, let us say that development education is the activity of acquainting Western populations with the problems of Third Word and with its various cultures. Development information is required for economic growth and the improvement of social conditions. Most importantly, since information technology is increasingly becoming the key to economic prosperity, it behooves us to help redefine the debate as an information science issue, rather than a media studies problem.

3.2. A World of Outsourcing

Globalization goes white collar. *China*: Strengths are hardware design and embedded software; Call centers for Japan and South Korea are growing in coastal cities. *Philippines*:

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

You have either reached a page that is unavailable for viewing or reached your viewing limit for this book.

Also of Interest

- **Business Communication Practices: Modern Trends,** *Uma Narula*
- **The Art and Science of Cinema,** *Anwar Huda*
- **Journalism,** *N. Jayapalan*
- **Advertising on the Internet: Let Your Fingers Do the Talking,** *Godfrey Harris*
- **Media Options for Teachers,** *Veena Kumar*

Atlantic Indian Reprint

- **A Companion to Media Studies,** *Angharad N. Valdivia*, Blackwell

Titles Exclusively Distributed by Atlantic

- **The Practical Media Dictionary,** *Jeremy Orlebar*, Arnold
- **Media Rights & Intellectual Property: Media Topics,** *Richard Haynes*, Edinburgh
- **Media Talks: Spoken Discourse on TV and Radio,** *Andrew Tolson*, Edinburgh
- **Concise Encyclopedia of Advertising,** *Kenneth E. Clow & Donald Baack*, Haworth
- **The Al Jazeera Phenomenon: Critical Perspectives on New Arab Media,** Ed. *Mohamed Zayani*, Pluto
- **The Great Reporters,** *David Randall*, Pluto
- **Freelancing for Television and Radio,** 2nd ed., *Lesie Mitchell*, Routledge
- **Making Journalists: Diverse Models, Global Issues,** *Hugo de Burgh*, Routledge
- **Media/Theory: Thinking About Media & Communications,** *Shaun Mores*, Routledge
- **News,** *Jackie Harrison*, Routledge
- **The Newspapers Handbook,** 4th ed.,*Richard Keeble*, Routledge
- **Print Journalism : A Critical Introduction,** Ed. *Richard Keeble*, Routledge
- **The Television Handbook,** 3rd ed., *Jonathan Bignell & Jeremy Orlebar*, Routledge
- **Writing for Broadcast Journalists,** *Rick Thompson*, Routledge

ATLANTIC®
PUBLISHERS & DISTRIBUTORS
www.atlanticbooks.com

ISBN 81-269-0513-1
9 788126 905133
Rs. 795.00