

CHAPTER IV

THE PROCEDURE

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CHAPTER IV

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"No man can ever scale the cliffs of another's island. They are impenetrable except for the ability to communicate with other islands but the isolation diminishes as this ability improves" (Short, 1971). The need for communication between Colleges of education and schools has been emphasized by many including the Kothari Commission (1966). Communication is capable of removing the isolation and bringing the two types of institutions together helping each to understand the other and thus enabling their

mutual progress.

The normal information flow between communicants depend on a number of independent variables. Rogers (1973) generalises that more effective communication occurs when source and receiver are homophilous. Homophily is the degree to which a source-receiver pair are similar in certain attributes, like, beliefs, education and social status. Several studies (Hurwitz et al (1960) Landfield (1954) Arthur Cohen (1958) William Read (1962)) demonstrate that status difference between the source and the receiver makes communication distorted, censored and affects the depth and accuracy of communication. Age, power, wealth, appearance and esteem, may create apprehension and affect communication. When human institutions proliferate status differences or personal habits aggravate them, communication becomes more difficult because of the repressive context in which it occurs.

The substance of the communication, that is the message passed through, is another independent variable affecting communication. People generally maintain their cognitive structures in relatively stable form and select and interact with those who do not attack these

structures. Because of its emotional significance and the possibility of producing cognitive dissonance, messages may trigger resistance and defensive mechanisms (Precher, 1953).

The medium through which the message travels also exercises influence over the communication. "The media is the message" is the famous dictum of McLuhan (1969). The medium and matter interact with manner to produce meaning. The flow of communication is dependent on the manner in which the message is communicated.

Evidences abound, theoretical as well as empirical, establishing the relationship between the receiver variables and effectiveness of communication. Rogers (1962), Rogers and Shoemaker (1971) Bhogle (1969) Buch (1972) Bholra (1965), Rai (1972) and Havelock (1973) supply empirical evidences, social psychologists like Sampson (1971) and Watson (1967) provide conceptual corroboration.

Educational innovations have passed the phenomenon stage and now they are viewed at a 'second level' with emphasis on description. Schools generally get the ideas about innovative programmes from official and voluntary organizations, one among them being colleges

of education. Colleges of education are a source for germination and propagation of innovative programmes (Buch and Buch, 1973). They communicate to the neighbouring schools, particularly to the practising schools, information regarding innovative programmes that can be adopted in school systems. Though one comes across several studies, foreign as well as Indian dealing with, characteristics of the resource system attributes of innovations, school characteristics, social structures of the schools, characteristics of Principals of schools and teachers as independent variables influencing the criterion variable, the adoption of innovation. As far as communication is concerned, there is only one study (Mykhopadyaya, 1974) on hand under Indian conditions. Even this study touches only marginally the problem of communication, as its main concern was on the resistance to educational change.

The problem of communication of innovation from resource agencies to schools is still unexplored and the present study is a pioneering venture in the area. The colleges of education, the resource system and their practising schools, the adopter system which are closely

knit together, are taken up together for investigation. The problem to be studied is "The communication patterns adopted by colleges of education".

4.1 Objectives of the study

The main aim of the study is to critically evaluate the pattern of communication from colleges of education to the practising schools regarding innovations in secondary education. Effective communication is affected by source variables, channel variables, message variables and receiver variables (Rogers 1973). The feedback variable has also its effect on the communication. Rogers (1973) recommends a relational analysis distinct from the individual analysis for studying the communication of innovative practices in agriculture and family planning. Buch (1972), Rai (1972) and Bagia (1973) adopted the individual analysis approach and studied the presage variables with reference to the innovations and the client system namely the school teachers and the principals. The objective of the present investigation is to study the nature of the communication pattern between the resource system and the client system namely the colleges of

education and the practising schools.

More specifically the objectives are:

- 1) To study, the distortion -(if any)- in the communication between the colleges of education and the practising schools.
- 2) To study the source message, channel and receiver variables as perceived by the staff in the colleges of education and by the teachers in practising schools and to relate these perceptions to the effectiveness of communication.
- 3) To analyze the barriers to communication between colleges of education and their practising schools.
- 4) To describe the nature of an effective feedback system between the schools and colleges based on the finding of the study.
- 5) To evolve a working model of communication based on this operational survey

4.2 Assumptions

The following are the main assumptions on which the study is based.

1. Colleges of Education communicate with their co-operative schools through their extension departments, through their own model school, through their products- the teachers and through the teacher trainees.
2. This communication has some relevance to the innovations in school practices.
3. There is need for communication between colleges of education and their practising schools (if not other schools)

4.3 The Scope of Investigation

As has been mentioned right through, the present investigation aims at studying the communication of innovations from the colleges of education. Of the resources agencies identified by Buch and Buch (1973) and Muhopadyaya (1974) this study is restricted only to the college of education.

As far as the adopter system is concerned the study involves only the practising schools connected with the colleges of education. Other neighbouring or far off schools that might have experienced the influence

of the colleges of education are not included in the study for the obvious reason that the colleges of education are more committed to the practising schools than to other schools in matters pertaining to school programmes and activities curricular as well as co-curricular.

The four components of the communication model as proposed by Havelock (1969) is supplemented by another equally if not more important component, the feedback. The relevant characteristics of the components that would facilitate the communication process are spelt out, drawing heavily from Sampson (1971), Rogers (1962) and Rogers and Shoemaker (1971). The following variables of the components of communication alone are considered in the study. They are

1. Resource variables, ✓
2. Message variables, ✓
3. Oral medium variables, ✓
4. Written medium variables, ✓
5. Indirect medium variables, ✓

6. Mass medium variables,
7. Receiver variables and
8. Feedback variables.

The main intent of the study is the flow of communication and the consonance between the communicants, with regard to the component parts of the communication model accepted and adopted for the study. The effect of the communication on the behaviour of the adopter system is beyond the purview of the study. However the effect is indirectly construed with reference to the innovativeness of the schools. The scope of the study is thus limited to the process of communication, the product effect being relegated to indirect inference.

4.4. Definitions of terms and concepts:

Before actually embarking on the study proper the constructs and the concepts are to be defined to make the approach to the problem, specific. The correct connotations with which the constructs and concepts are used in the study are defined below:

Communication pattern: The different definitions for

communication have been stated in Chapter II. Pattern is the design used in communication. It depends on the importance given to the various components of communication. Therefore communication pattern is defined to be the type or kind or design of the communication that is adopted by the colleges of education based on the weightages given to the various components of communication.

Innovation: As far as this study is concerned communication implies communication of innovations from colleges of education to their practising schools and as such the term innovation is defined as follows;

"Innovation, the necessary ingredient of the process of educational change is defined as the introduction of a novel element, a driving force, a practical advance that deviates from established or traditional formsGenerally speaking it seems useful to define an innovation as a deliberate, novel, specific change which is thought to be more efficacious in accomplishing the goals of education" (Miles, 1964).

For the purpose of this study innovation is defined

to be any idea perceived as new by the adopter system.

Practising Schools: Colleges of education send out their students for teaching practice to a number of schools which are usually known as practising schools. They are also known as co-operative schools. The theory that is learnt at the training college by the student is put to practise at the practising or co-operative schools as such a close link between colleges of education and their practising schools becomes necessary. The link, connection or co-ordination could be achieved only through communication.

Distortion: As the study mainly concerns itself with the distortion in communication the term distortion is defined as follows:

Distortion is the deviation between what one intends to communicate and what he actually communicates.

Colleges of education: These are institutions where pre-service training is given to teachers. They are also called Training Colleges and their products are mainly secondary school teachers.

4.5 Hypotheses evolved:

This study aims at an investigation of communication of innovations from colleges of education. Some of the problems confronted while embarking on the study are as follows:

Is there a flow of communication from the colleges of education to the practising schools?

Are the messages received as they are floated or do they undergo distortions, dilutions and deductions?

Is there any^y association between the various components like source, message etc. of the communication model and the effectiveness of the communication?

Which are the main barriers to the flow of communication?

Could an effective model for communication between colleges of education and their practising schools be evolved which could help effective communication between the two types of institutions.

In order to specify in somewhat greater detail the

areas this study is to probe into, to find out the answers to the questions posed above and allied ones, certain hypotheses are evolved to be put to empirical tests for acceptance or rejection.

Colleges of Education are a source agency that pass on information about innovations to practising schools. Buch and Buch (1973) found in the order of importance, the Colleges of Education Extension services and Directorate of Education as sources of innovation, though the Indian Education Commission (1966) has stated that colleges of Education are isolated from schools. But Colleges of Education cannot remain isolated where their practising schools are concerned and communication is bound to occur between them. This communication to be effective should be free from distortions. To the extent there is distortion, the effect of the communication deteriorates. Still we have to accept the fact that "There will always be some distortion in the communication as it passes from the sender to the receiver but too much of distortion makes communication ineffective" (Desai, 1969). There are no empirical evidence either for or against this assumption. On

this theoretical assumption the following null hypothesis is evolved.

H₁ : There is no distortion in the innovations communicated from colleges of Education to their practising schools.

4.5.1. Types of Innovation:

Innovations are now pervading the whole area of educational activities. Attempts have been made to classify them based on the philosophy of education as well as on the specific interpretations of the process of innovations. Markland (1971) mentions three levels of innovations; the external structure of the schools; timetables and syllabuses and the instructional methods. Goodlad (1966) gives a threefold division, political, institutional and instructional. Miles (1967) makes a classification of eleven types of innovations" organized according to the aspects of a social system with which they appear to be most clearly associated". The GERI (1973) studies adopt a typology with a four category division

i) objectives and functions

- ii) organisation and administration
- iii) roles and role relationships and
- iv) curriculum.

The present study proposes a typology with fifteen categories. The rationale for such a classification is explained elsewhere in the report under the section, 'the construction of tools'. (page 4.38) Certain types of innovations may be installed using the existing structures; some others may require a change in the structures. (Miles, 1964). When change in the structure either physical or mental or both is demanded, resistance generally is raised by the receiver. Under such circumstances communication may be distorted and defenses triggered off. "We tend to maintain our cognitive structures in relatively stable form and select and interact with those who do not attack these structures" (Precker, 1953). In the communication of innovations that may lead to cognitive dissonance (Festinger, 1957) in the receiver or that may call for a shake in the existing structure, one can logically expect distortion. Corroborative empirical evidences could be cited from the findings of the studies that considered the attributes of innovations and their association with their adoptability.

(Rogers, 1962; Kivlin, 1960; Barnett, 1953; Lippitt, 1966 Miles, 1964; Chin, 1964; Rogers and Shoemaker, 1971; Havelock, 1973; Bhagia, 1973) It is assumed that all types of innovations may not be received with equal facility by the school staff when communicated from Colleges of Education and the following null hypothesis is framed to test this assumption.

H₂ : There is no difference in the distortion, if any, amongⁿ the different types of innovations communicated.

4.5.2. Communication and innovativeness of Schools:

The main assumption on which this study is based is that the innovativeness of practising^{Schools} is related to, or in other words, is proportionate to the communication received from colleges of education. Buch and others have provided empirical evidences to this assumption. Anyway to establish the assumption with reference to the sample of this study the following hypothesis is framed.

H₃ : The communication score and the innovation indices of the schools are significantly related to each other.

4.5.3 Distortion in Communication:

The main objective of the study relates to the communication flow from the colleges of Education to their practising schools. Again the facility of the flow is studied in terms of distortion in communication. The less the distortion in communication, the easier or smoother the flow of communication, With a view to study this distortion the following hypothesis has been formulated.

H₄ ; There is no distortion in the communication as expressed by the College teachers and as experienced by the school teachers.

4.5.4. COMPONENTS OF COMMUNICATION MODEL

The well known communication model, SMCR comprises four components; the Sender, the Message, the Channel or the Media and the Receiver. (Berlo, 1960). Each component has its own ingredients and these ingredients influence the effectiveness of the communication. Landfield (1954), Cohun (1958), Read (1962), Chaparno (1956), Lionberger

(1959) and Rogers (1962) have established the relationship of source variable with communication effect. Age, power, wealth, appearance and esteem are some of the source variable facilitating or debilitating communication. Hurwitz et al (1960) report research evidence that people who control the destiny of others such as parents, teachers, supervisors, provoke ego defensive reactions, quite apart from what they communicate.

The message effect on the communication has been discussed in the previous section. The impact of media on the communication effect has been the subject of several investigations. That written media has a wider application with learned people appeals to commonsense and requires no backing of empirical evidence for legitimacy. A multitude of conditioning variables determine the success or effectiveness of oral communication. The interaction of the individual personality of the speaker with the collective personality of the audience exercises more influence than the message salience or receiver receptivity (Havelock, 1969). To the extent that the receivers are "tuned on" to the speaker, the rapport

between them is being established and the communication becomes effective (Zajonc, 1960).

Exposure to mass media is an indirect approach to reach the audience. Very often it has been resorted to, to bring in social changes on a mass scale. The effect of mass media on agricultural adoption has been widely studied, Kiobin et al (1971) report that the mass media index is strongly related to agricultural adoption ($r = .50$) in their study on "Agricultural Innovation among Indian Farmers".

The receiver variables with reference to the adoptive behaviour have been empirically studied by a multitude of researchers in anthropology, sociology, rural sociology, industry and in education. Demographic, personality and other psychological variables of the receiver influence the receptivity of the communication. Carl Rogers (1951) Festinger (1957) Sheriff and Hovland (1961) and Campbell (1961) offer logical explanations as to why people tend to distort information. Jones (1967) Zajonc (1960) and Cohen (1961) provide research evidences. Buch (1962), Rai (1972) Rao (1967) and Bhogle (1969)

report the same under Indian conditions. ✓

There are evidences, logical and pragmatic, explaining the influence of the four components of the communication model on the effect of the communication. The flow of innovations from the colleges of ^eEducation to the practising schools, is considered in the present study in two ways; 1) as expressed by the staff of the college of education and 2) as experienced by the teachers in the schools. The accordance between the sender and the receiver, here the colleges of Education and the Schools, with regard to the influence of the four components on the communication effect will facilitate easy flow of the communication. Research based evidences for such accordance are not available. Taking into consideration the alleged isolation of the Colleges of Education from the schools and the empirical facts that in atleast certain area, the Colleges of Education are the first source of innovations to schools (Buch and Buch, 1973) the following null hypotheses are worked out.

The classification of medias are as follows: when the message is delivered orally in person to the receiver

system, it is classified under oral media. When some written means letter or journal is used to convey the message, it is classified under written media; where there is an agency inbetween the resource and receiver system, it is classified as indirect media; usage of any of the audio-visual appliances makes it mass media.

H₅ : There is no difference in the distortions, if any, among the different components of the communication model.

H₆ : There is no distortion in the perception of resource variables between the colleges of Education and their practising schools.

H₇ : There is no distortion in the perception of message variables between the Colleges of Education and their practising schools.

H₈ : There is no distortion in the perception of oral medium variables between the Colleges of Education and their practising schools.

H₉ : There is no distortion in the perception of written

medium variables between the Colleges of Education and their practising schools.

H₁₀ : There is no distortion in the perception of indirect medium variables between the Colleges of Education and their practising schools.

H₁₁ : There is no distortion in the perception of mass media variables between the Colleges of Education and their practising schools.

H₁₂ : There is no distortion in the perception of receiver variables between the Colleges of Education and their practising schools.

4.5.5. Relation between distortion in communication and innovativeness:

When communication flows freely without any blocks, physical or psychological, and is received without any distortion, the adoption of innovations by schools will be greatly facilitated. Snags in Communication may stifle the adoption process in all the stages. Based on this logical reasoning it is hypothesised that

H₁₃ : There is no relationship between the distortion in communication and the innovativeness of Schools.

4.5.6. Types of Colleges

There are different types of Colleges of Education and Schools. As far as Schools are concerned, even though the management and composition variables may affect the school quality (Pillai, 1973) because we are taking into consideration just a few flosely knit practising schools these differences are not taken into consideration. But where the Colleges are concerned, we do take into consideration the different types namely those for men and those for women, the Government and the Private Colleges, Annamalai and Madras University and separate hypotheses are evolved to study the differences in the communication patterns between them.

H₁₄ : There is no difference in the communication pattern adopted by Colleges of Education for men and Colleges of Education for women.

H₁₅ : There is no difference in the communication pattern

adopted by colleges of Education of different managements to their respective practising schools.

H₁₆ : There is no difference between the communication pattern adopted by the Annamalai and Madras University Colleges of Education,

4.5.7. Feedback

Feedback is an equally, if not more, important component in the communication system. It is a response by the receiver to the sources message. It is one way of looking at the source as a receiver (Rogers, 1973). Without feedback the communication becomes one way and the source cannot get the information regarding the effect of the communication. Feedback can be utilised to enrich interaction (Flanders, 1969). It may be resource-elicited or user initiated. (Havelock, 1969), direct or indirect.

The proper functioning of the feedback mechanism depends on the inter-personal relationship between the source and the receiver. Feedback is closely associated

with the feedforward, the source anticipates certain receiver behaviour at specific points in the interaction and lays out alternative courses of action depending on whether the expected reactions occurred or not. The setting up of such expectancies and contingencies is called feedforward. (Clevenger, 1971).

The Colleges of Education do expect the practising schools to behave in certain ways in the adoption of innovations as they are the practising ground for their trainees. Naturally they will elicit feedback from the schools and also encourage initiation of feedback from schools. It is on these logical reasonings that the following hypothesis is framed.

H₁₇ : The Colleges of Education do not differ in receiving feedback from the practising schools regarding the communication of innovations.

4.5.8. Barriers to Communication:

There are several studies relating to Barriers to innovations in Schools. This study concerns itself with

the flow of communication and as such a study of the impediments to this flow becomes an essential component of the study. A separate tool has been evolved for the purpose, the details of which is given on page _____ 2
The following hypothesis has been evolved to test the agreement between colleges of education and their practising schools relating to barriers to communication.

H₁₈ : There is no agreement between colleges of Education and their practising schools relating to barriers to communication.

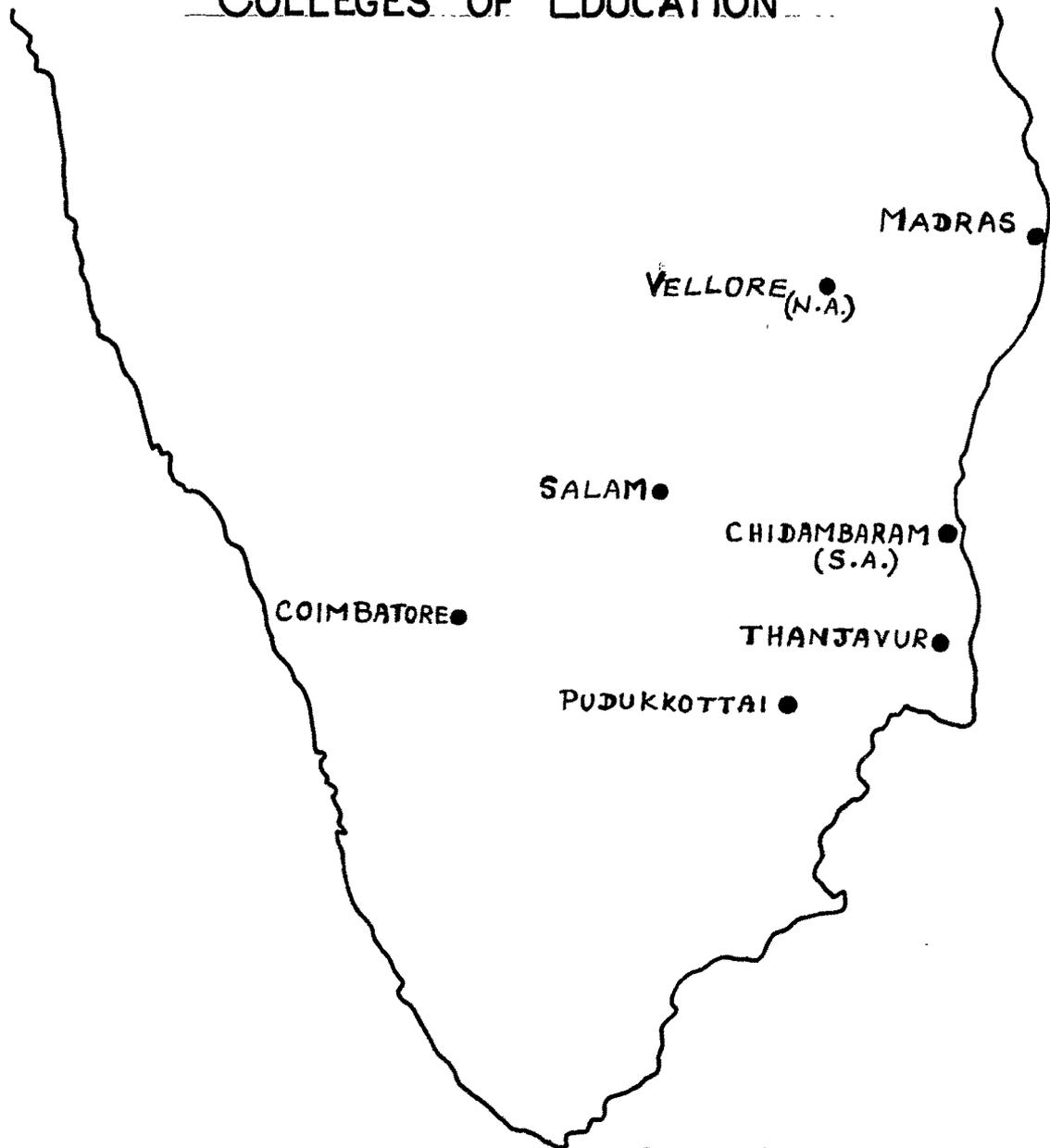
4.6 Sample:

This study is confined to the Madras and Annamalai University area. There are fourteen Training Colleges in the Madras University area and all the fourteen colleges are taken up for the study. The Annamalai University department of education is a teaching department teaching around 500 B.Ed., and M.Ed., students. This department of education is considered to be one college of education for the purpose of this study.

FIGURE - XI

MADRAS AND ANNAMALAI UNIVERSITY

COLLEGES OF EDUCATION



COIMBATORE

MADRAS

PUDUKKOTTAI

TANJAVUR

SALAM

NORTH ARCOT

SOUTH ARCOT

COLLEGES

I, II, III

V, VI, VII, VIII, IX, X

XII

XI

IV, XIII

XIV

XV

These 15 Training Colleges are spread out among seven districts of Tamil Nadu namely Madras, Coimbatore, Salem, Trichy, Tanjore, North Arcot and South Arcot. The number of practising schools varies from college to college. In all there were more than 200 schools attached to these 15 colleges of Education as practising schools.

As all the Colleges of Education in the Madras and Annamalai university area were involved, the question of sampling did not arise at the college level. With respect to schools a random selection of 50% of the schools was made from each college cluster, as the total number exceeded 200. All the graduate trained teachers in these selected schools were approached for collection of data. The list of Training Colleges taken up for the study and their co-operative schools which responded to our queries are given in Appendix.

The following table gives an over all idea of the sample :

TABLE NO. 4

DISTRIBUTION OF THE SAMPLE

S.No.	District	Colleges		Schools	
		No. of insti- tution	No. of ques- tion- naires	No. of Insti- tution	No. of ques- tion naires
1.	Madras	6 ✓	36 ✓	40 ✓	309 ✓
2.	Coimbatore	3	22	27	189
3.	Salem	2	13	12	96
4.	Trichy	1	3	5	35
5.	Tanjore	1	7	8	51
6.	North Arcot	1	4	6	44
7.	South Arcot	1	4 ✓	5 ✓	27 ✓
TOTAL:		15	89	113	751

Among the 14 Colleges of Education of the Madras University 7 are men colleges and the other 7 are women colleges. Regarding management 7 are managed by Government and rest are private management Colleges of Education.

7
4.8 Tools

In investigations in education and allied social sciences, preparing or selecting tools demands the greatest care, the absence of valid and reliable tools very often discourages people from undertaking researches in many areas.

The present study aims at finding the communication flow of innovations from colleges of education to practising schools. The effect of the communication is indirectly construed from the innovativeness of the schools. It is also proposed to find out the barriers, if any, for the adoption of innovations in schools.

Three major tools are pressed into service in this investigation to collect the relevant data to test the hypotheses formed. The first is a scale to measure the innovativeness of the school. The second tool gathers data regarding the communication flow of the innovations and the third tool collects information regarding the barriers to the adoption of innovation.

4-7-1. Tool 1: Measurement of the innovativeness of the school.

Before attempting at anything new, it was considered expedient to analyse the existing tools used in previous studies for the measurement of the innovativeness of schools. Some twenty tools were studied, both foreign and native and it was realised that no one of them could serve the purpose aimed at, at the present study.

Mort, Vincent and Newel (1945) developed the "The growing Edge" tool. The tool could serve better as a self analysing appliance as it lists out 85 items in the high school and expects the respondent to check each item for its presence or absence. The tool was prepared to be administered to the American Schools and the items included may not have relevancy to Indian conditions: It gives credit only to the actual practice of the item and is not concerned with the other stages of adoption, namely awareness, trial or evaluation^a.

The tools analysed can be classified under three

broad groups.

1. Those that gather information regarding the presence or absence of the innovation only
2. Those that consider the time of adoption and the continuance of the practice.
3. Those that require information regarding the extent of the use also.

Innovation is a continuum: It is not an either/or entity; the various stages of the adoption of the innovation, whether they are three (Lewin, 1963) four (Wilkening, 1953) five (Rogers, 1964) or seven (Pareek, 1968) are to be considered while attempting to measure the innovativeness of the individual or the institution. Adler (1955) argues for the inclusion of the extent of adoption in the innovation scale. Pareek (1968) propounds a formula with differential weightages to various stages of adoption to calculate the innovativeness of the agriculturists. With a little less sophistication after establishing the unidimensionality of the adoption process

Kivlin et al (1971) suggest weightage to the various stages of adoption at unit intervals.

Fliegel (1956) demonstrated that a differential factor weighing correlated. .96 with his unit weighing for a 11 - item scale among 176 dairy farmers in Wisconsin (Fliegel, 1956).

Pareek's proposal could not be adapted as no sound theoretical bases for the award of differential weightages to the differing stages of innovation are yet evolved for educational innovations. So it was decided to adopt a scale with weightage to the varying stages of innovation increasing by unit intervals successively to the stages of adoption as conceived for the study.

There is no consensus^u regarding the stages of the process of innovation adoption and the nomenclature by which they are described by different researchers. The stages vary from Lewin's three to Pareek's seven. In the innovation continuum five points predominate. All the researchers quoted above start with the awareness

stage. When weightage is to be given to the various stages with unit intervals and awareness is also to be given credit we have to start a stage earlier for which we can award a zero credit, so it is decided to start with 'Not aware' stage and proceed to other stages.

Sen Gupta (1967) in his "Adoption of innovation Scale" provides for five stages starting from ignorance to adoption assigning scores 0 through 5. In the present study also the scores are assigned from zero through four to the various stages of adoption starting from ⁿNot aware and culminating at adoption.

The five stages selected for study are the following:

- 1) not aware, ii) aware, iii) shaping, iv) trial and v) adoption

The stages as conceived for the study are explained below:

i) Not aware:

The respondents are not aware of the innovation. They have no idea about them. They have not received

any information about them from any source.

ii) Aware:

They know about the innovations. Information has reached them and it is at the knowledge level only.

iii) Shaping:

This is the planning stage of the innovation.

iv) Trial:

Trying out the innovation.

v) Adoption:

Success in trial leads to permanent adoption.

When once the stages of adoption are finalised, the next question that poses before the investigator is about the innovations that are to be included in the questionnaire.

In the post independent period immense improvement in education at the instructional and enrolment levels is being experienced. The quantitative expansion with

the concern for quality and the national commitment for equal opportunity has caused an elusive triangle in education. (Naik, 1975) To cope up with this tri-patrite attack, education at all levels has to invent, innovate and adopt new programmes to become compatible with our national needs and aspirations. A number of innovations are being germinated and diffused from various agencies.

With the institution of the All India Council of Secondary Education, DEPSE, and later the NCERT, SIE'S and SCERT'S, Extension Departments and other private research agencies like TNTU, there has been a proli-feration of innovations in secondary education in our country. Innovations have had their origin at the higher echelons of the educational system and the diffusion descends from higher levels to lower levels. At times they germinate at the grass root levels also, and have a horizontal flow to other sister institutions from where they are born. Though a large number of innovations are being familiarised through various sources, only a few innovations were considered in some of the previous

studies in the area. The number starts with 1. Rai (1973) considered one innovation, seeing better question paper, Pillai (1973) rated the innovativeness on the information about ³⁰ innovations. Buch (1972) studied 19 innovations; Bhagia (1973) was satisfied with 14.

The investigator herself having worked as a teacher in high schools, training institutions, colleges of Education and in the executive line as inspector of schools possesses a personal knowledge about the innovations in secondary schools. Tentatively she prepared a list of innovations, leaning on her practical experience and with reference to the information available in the quarterly, Tamil Nadu Education (Originally Madras Education) an official journal of the State Institute of Education, Tamil Nadu, copies of which reached every high school. This list consisted of a hundred items and the list was sent to Principal of Colleges of Education, Headmasters/Headmistresses of schools and District Education Officers and practising teachers for expert opinion. They were requested to offer their suggestion regarding the possibility of these innovations being

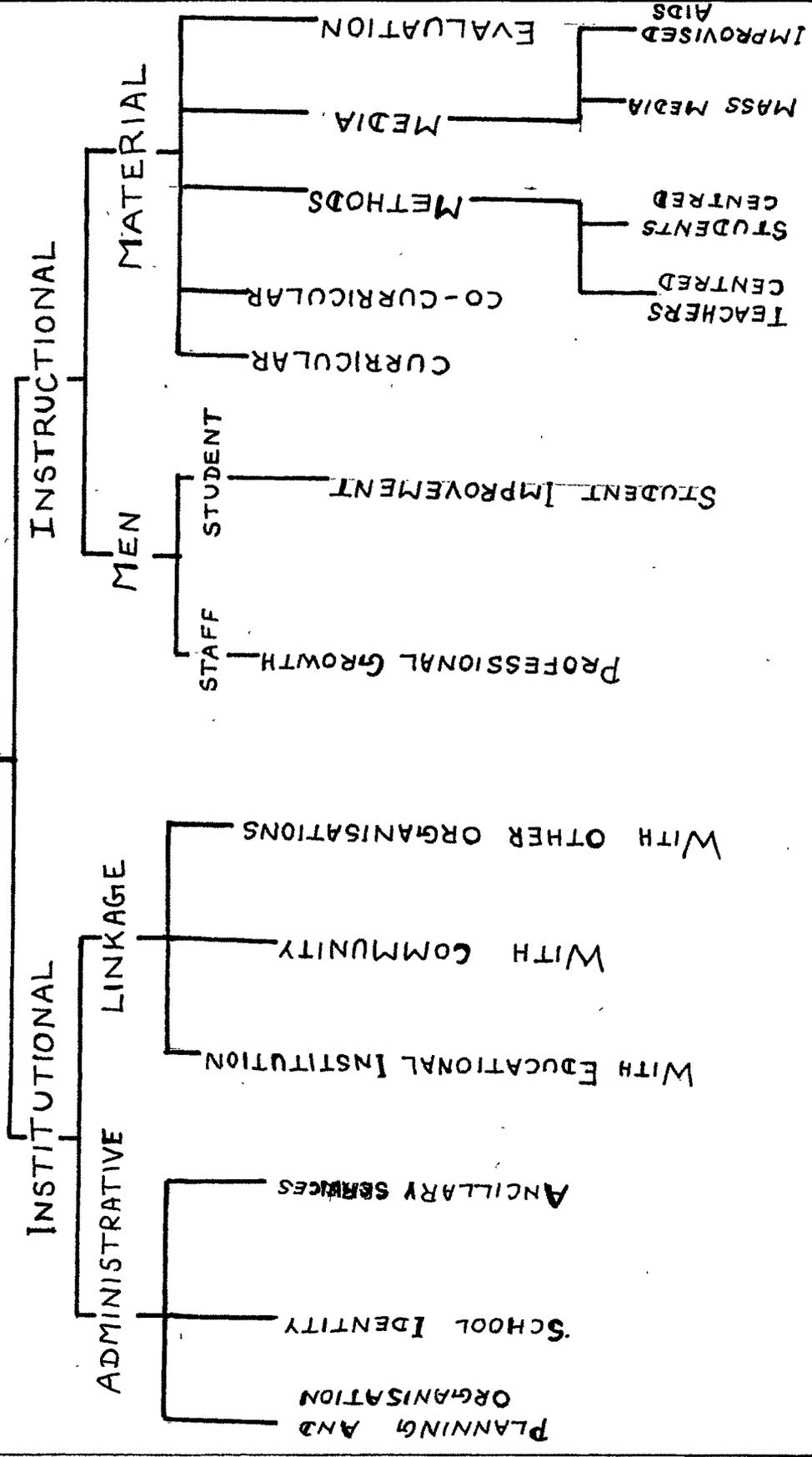
known to the teachers working in schools. They were also requested to supplement the list if any innovations that could have been known to the teachers but have been omitted in the list.

The responses from the experts were analysed for consensus and finally 84 innovations were selected for inclusion in the study. The criteria kept in mind while selecting the innovations are the following.

1. Every possibility of the information about them to have reached the schools.
2. Obligatory school practices are not included
3. The list was based on the preliminary study conducted.

The 84 innovations selected are grouped under 15 broad categories. Categorisation of innovations very often is idiosyncratic and a consensus here is more an exception than a rule. From different perspectives the same innovation can be viewed differently and grouped under different category.

FIGURE - XII
THE INNOVATION TYPOLOGY
INNOVATION



Adapting classification of the innovations in Teacher Education by the Technical working group (1975) that met at Katmandu to consider the alternative structures and methods in Teacher Education, a two fold division of the innovations is made at the apex; institutional and instructional; Institutional innovations are those that involve the entire school in the operation. They are mainly concerned with administrative aspects and the linkage of the school with outside agencies. Instructional innovations include all those new practices pertaining to the teaching learning process. From these two broad categories further sub-categories branch off and they are listed below. The innovation-typology (Fig. 12) facing this page illustrates this taxonomy of innovations.

Thus tool 1 is constructed to gather information regarding 84 innovations that are being practiced by the teacher at different stages of adaption, not aware, aware, shaping, trial and adoption. The teachers are requested to draw a circle around the relevant letter against each item depending upon the level of implementation. The following instructions were given to them.

If you do not know about the innovation put a circle around A, which would mean 'I am not aware'. — (1)

If you know about the innovation but have not attempted to implement it, circle the letter B, which would denote 'awareness' stage. B

If you know and if you are planning to implement it, but have not yet implemented, round C, which mean 'shaping stage'. — C

If you are trying it but have not fully implemented it, round D to denote the 'trial stage'. D

If you have implemented the innovation successfully put a circle around E, which would mean 'adoption'. E

Example: Annual Examination: A B C D (E)

The format of the questionnaire is as follows:

Sl. No.	Innovation ^a	Stage of innovation				
		Not Aware	Aware	Shaping	Trial	Adoption

1.

2.

.

.

.

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As the main objective of the study is to find out the communication flow from Colleges of Education to schools, it was decided to gather the same information from Colleges and schools and then to compare them for agreement. The staff in the Colleges of Education were requested to circle the relevant letter against each item depending upon the level of implementation. The following instructions are given to them.

Some of the innovations that might have been introduced in Schools are listed below. The innovations may be in various stages of implementation. Please indicate the stage at which each innovation is practised in most of the schools by putting a circle around the relevant letter (A,B,C,D or E) in the appropriate column.

If according to you, most of the schools are not aware of the innovation put a circle around A, which would mean "The Schools are not aware of the innovations".

If the schools are aware of the innovations, but have not attempted to implement it, please circle letter B, denoting that the innovation is only at the awareness stage.

If they know and are planning to implement it, but have not yet implemented, round 'C' which would mean 'Shaping' stage.

If they are trying it but have not fully implemented it, round 'D' which would mean trial stage.

If they have implemented the innovation successfully

put a circle round E which would mean 'adoption' stage.

(Example: Terminal Examination A B C D (E))

Thus with different instructions the same tool was administered to the staff both in colleges and in schools. The questionnaire in its final form is appended to the report as annexure.

4.7.2. Tool 2: Measurement of Communication:

Tool 2 is prepared to collect information regarding the communication flow from colleges of education to the practising schools. The aim is not simple to concentrate on the 'how' focus of the Havelockian Communication problem foci- who w/ says what to whom by what channel (how) to what effect for what purpose? but also to gather data on all the five components of the communication model evolved for the study, under the conceptual framework of communication models.

The communication model conceptualised for the study consists of five components; source, message, media (channel), receiver and feedback. Each component

has its own ingredients. Information regarding these ingredient elements of the components are to be collected to decide whether the use of these ingredients would differentiate the pattern of communication. The study also aims at discovering, if any, the distortion in the communication corresponding to these components between Colleges of Education and the practising schools. So it was decided to gather information regarding the use of the various ingredients of the components.

Each ingredient is operationalised in statement forms and the respondents were requested to denote the occurrence of the situation on a frequency continuum scale with five points specified, very frequently, frequently, generally, sometimes and rarely. As the occurrence of these situations forms a continuum, the dichotomous either, or response is not considered the relevant one for the study.

There are 6 ingredients under the source component, three under message, four under media, four under receiver. The feed back component is considered as a whole without any ingredient analysis. Statements

explicitly expressing these ingredient characteristics were framed in operational terms. On the whole 120 statements were written in the first draft and after revising, redrafting and pruning a list of 90 statements was prepared. This list was sent to five experts (One principal, one professor, one Headmaster, One teacher and one linguistic expert) in its field for scrutiny. They were requested to examine the statements for their validity to test the particular ingredient and for the clarity of expression. The opinions of these experts were taken into account to arrive at the final selection of items to be included in the (questionnaire) scale. Sixty six statements were selected finally and the distribution of these statements to the various components and ingredients is as follows:

TABLE NO. 5
ANALYSIS OF TOOL II

Sl. No.	Component	Ingredient	Statements	Total
1	Source	a) Trustworthiness	1-2	2
		b) Expertise	2-4	2
		c) Power	5, 6	2
		d) Intent	7, 8	2
		e) Attractiveness	9, 10	2
		f) Similarity to the receiver	11, 12	2
2	Message	a) Structure	13	1
		b) Content	14, 15, 16	3
		c) Kind of appeal	17 to 20	4
3	Media	a) Oral	26 to 36	11
		b) Written	37 to 45	9
		c) Indirect	46 to 54	9
		d) Mass	55 to 61	7
4	Receiver	a) Personality	21	1
		b) Ability	22	1
		c) Kind of participation	23	1
		d) Degree of participation	24, 25	2
5	Follow up		62 to 66	5
Total: 5		18	66	66

As the burden of the study is the distortion of the communication between colleges of Education and practising schools, the same scale was administered to both the members of the staff. The statements were suitably modified. In the scale for the college staff, statements referring to college staff were written as, "We discuss the new idea with school staff"; but in the scale for school teachers the statement with the same operational item is written as, "The College teachers discuss the new idea with us".

The operational specifications of the ingredients of the components are the same in both the scales; but the statement forms differ to suit the sets of staff members. Detailed instructions were given for responding to the scale items and the final format of the scale is as follows:

Sl. No.	Statements	Very frequently	Frequently	Generally	Some times	Rarely
1	2	3	4	5	6	7

The scales in their final form as administered to College staff and School staff are given in the annexure (Annexure 2 + 3).

4.7.3. Tool 3: Study of Barriers to Communication:

Tool 3 is constructed to collect information regarding the barriers for the introduction of innovation in schools. Twelve communication oriented barriers are listed out and the respondents are requested to state whether each stands as a barrier for the introduction of new programmes in schools. Of the items considered as barriers, they are also requested to rank 5 in the order of their severity. The tool is also annexed to the report (Annexure 2 + 3)

Three tools are used in the study for collecting the relevant data. An account of how these tools are constructed is given above. The tools used in the study are:

- 1) Innovation scale (For college staff and school staff)
- 2) Communication scale(For college staff and school staff)
- 3) Checklist for barriers(For college staff and school staff)

The introductory part of the (questionnaire) collects identifying data regarding the respondents.

4.8 Establishment of reliability and validity :

The reliability of the tools is established using the test-retest method. The tools were administered for a second time to a hundred randomly selected respondents from the original sample after a lapse of a month's time. The test-retest correlations for the various tools are arrived at as follows :

For Tool	1	0.889
For Tool	2	0.917

Validity is a highly relative concept and the answer for the question, 'valid for what ?' decides the type and level of validity appropriate for the given situation. Tool 1, the innovation scale possesses face validity and content validity. It 'appears' to measure the innovativeness of the schools and the innovations listed out in the scale are exhaustive with reference to the colleges of education and the practising schools in Tamil Nadu. The intrinsic validity of the tool is .943 as measured from its test-retest reliability.

TABLE NO : 6

Table showing the calculation of Test-Retest
Correlation coefficient for Tool I

	100	120	140	160	180	200	220	240	260	280	300	320	f	x	fx	fx ²
300										3	3	1	7	10	70	700
280									1	1			2	9	18	162
260						1	2	1		2	1		7	8	56	448
240					1		2	2	1	1			7	7	49	343
220						2	2	2					6	6	36	216
200						2	1		3				6	5	30	150
180					2	1							3	4	12	48
160			3	2		1							6	3	18	54
140													0	2	0	0
120		1	1										2	1	2	2
100	2	1		1									4	0	0	0
f	2	2	4	3	3	7	7	5	5	7	4	1	50			
y	0	1	2	3	4	5	6	7	8	9	10	11			291	2123
fy	0	2	8	9	12	35	42	35	40	63	40	11	297			
fy ²	0	2	16	27	48	175	252	245	320	567	400	121	2173			
fyfx	0	2	20	18	60	185	282	238	248	558	380	110	2101			

$$\begin{aligned}
x &= \frac{50 \times 2101 - 271 \times 297}{\sqrt{(50 \times 2123 - 291^2)(50 \times 2173 - 297^2)}} \\
&= \frac{18623}{\sqrt{21469 \times 20441}} \\
&= \frac{\cancel{18623}}{2.0948.7} \\
&= .889 \\
\sqrt{x} &= \sqrt{.889} \\
&= \underline{\underline{.943}}
\end{aligned}$$



TABLE NO. 7

Table showing the calculation of Test-Retest
Correlation Coefficient for Tool II

	60	80	100	120	140	160	180	200	220	f	x	fx	fx ²	f(x)f(y)
220									1	1	8	8	64	64
200								1		1	8	8	49	49
180				1	1	2	2		1	7	6	42	252	222
160					5	5	1			11	5	55	275	255
140				3	5					8	4	52	128	116
120				4						4	3	12	36	36
100		3	1		2					6	2	12	24	26
80		5								5	1	5	5	5
60	6	1								7	0	0	0	0
f	6	9	1	8	13	7	3	1	2	50				
y	0	1	2	3	4	5	6	7	8		173	833	773	
fy	0	0	2	24	52	35	18	7	16	163				
fy ²	0	9	4	72	208	175	108	49	188	753				

$$\begin{aligned}
 r &= \frac{N \sum f_x f_y - \sum f_x \sum f_y}{\sqrt{(N \sum f_x^2 - (\sum f_x)^2)(N \sum f_y^2 - (\sum f_y)^2)}} \\
 &= \frac{50 \times 773 - 173 \times 153}{\sqrt{(50 \times 753 - 163^2)(50 \times 833 - 173^2)}} = .917 \\
 \sqrt{r} &= \sqrt{.917} \\
 &= 0.958
 \end{aligned}$$

For Tool 2, the communication scale, the construct validity is taken care of by including the all the major components of the communication model. The relevant ingredients under each component are included and operationally defined in statement forms. The intrinsic validity for this tool works out to .958.

The tools used in the study to collect the required data, thus, possess significant reliability coefficients. The validity of these tools was also discussed in each case. As the main purpose of the tools was to collect the relevant data required for the study intricate discussions and sophisticated statistical standardization, techniques to establish reliability and validity were not attempted :

4.9 Analysis of data

The responses collected through the first two tools were first quantified assigning scores as follows :

Tool	1	Not aware	0
		Aware	1
		Shaping	2
		Trial	3
		Adoption	4
Tool	2	Very frequently	5
		Frequently	4
		Generally	3
		Sometimes	2
		Rarely	1

The quantified data are then subjected to statistical treatments as detailed below:

The distortion in the innovation and communication between the college and the school staff is measured using 't' tests for significance. The differences in the mean score values, if significant determine the distortion. When the differences are not significant the distortion, if any is due to change factors and hence is not taken cognizance of. The angle of distortion is also calculated in the cases.

When the angle of distortion is 0, the two mean scores are identical. The percentage variation of the mean scores is taken as the basis for the calculation of the angle of distortion. The details of the calculation and the statistical implications are given in the chapter dealing with execution of the study.

Tool 3 relates to barriers. The Colleges and school staff were required to mark their presence as well as to rank them. The agreement between the statements of the college staff and the school staff is

studied through rank correlation. The intensity of the barriers is studied through assigning weightages to ranks and arriving at the total score for each barrier. Details and results are given in Chapter V.

4.10 Conclusion

Based on the knowledge that accrued as a result of the study on the foundations of communication summarised in Chapter II as well as on the knowledge about the previous research studies on communication summarised in Chapter III, a model has been designed for this study. Tools were constructed as described above with a view to collect data relating to all relevant variables. All the training colleges in the Madras University area as well as the Education Department of Annamalai University and their practising schools (limited to a maximum of 10) served as the sample. After deciding this structure, the execution of the study was undertaken, the details of which are given in Chapter V.