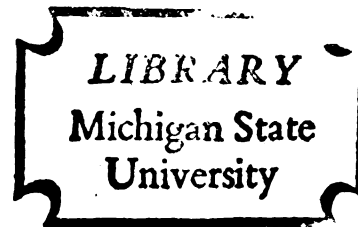


SYSTEM VARIABLES AND EDUCATIONAL
INNOVATIVENESS IN THAI GOVERNMENT
SECONDARY SCHOOLS

Thesis for the Degree of Ph. D.
MICHIGAN STATE UNIVERSITY
F. FLOYD SHOEMAKER
1971



This is to certify that the

thesis entitled

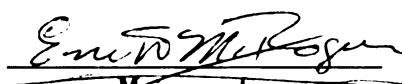
SYSTEM VARIABLES AND EDUCATIONAL INNOVATIVENESS
IN THAI GOVERNMENT SECONDARY SCHOOLS

presented by

F. Floyd Shoemaker

has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Communication


Major professor

Date April 15, 1971

~~_____~~ 84
~~_____~~ P41

NOV ~~_____~~ 337

~~_____~~ 309
32 ~~_____~~ 322
61

~~_____~~ 326
~~_____~~ 068

~~_____~~
I 077

~~_____~~ 142

SEP 25 1976

ABSTRACT

SYSTEM VARIABLES AND EDUCATIONAL INNOVATIVENESS IN THAI GOVERNMENT SECONDARY SCHOOLS

By

F. Floyd Shoemaker

The present study focused upon the simultaneous analysis of individual and system variables to explain variance in individual innovativeness. Individual variables measured included communication, social and psychological behavior of Thai teachers and principals in government-sponsored secondary schools. System variables analyzed were aggregate measures of individual variables for each of the 28 schools in the sample.

Data utilized in the study were one portion of the comprehensive Thailand Educational Diffusion Project conducted by the Institute for International Studies in Education and the Department of Communication, Michigan State University, and sponsored by the U.S. Agency for International Development and the Inter-University Research Program in Institution-Building.

Ten innovations selected for inclusion in the investigation included school libraries, parent-teacher associations, Peace Corps volunteers, departmental organization, guidance counseling, class discussion methods, objective testing, audio-visual aids, coeducation, and vocational education. The four dependent variables were school awareness of the innovations, the school's attitudinal acceptance of innovations, school innovativeness, and individual teacher innovativeness.

Sixteen theoretic hypotheses, which predicted directional relationships, were tested in the data analysis. When zero-order and multiple correlations were tested for significance at the 5 percent level of confidence, it was found that four of the hypotheses were statistically significant.

The study indicated that the perceived psychological distance between principal and teacher, the amount of role performance feedback from principal to teacher, and the role satisfaction of principal and teacher were factors which contributed to the attitudinal acceptance of innovations and change by Thai government-sponsored secondary schools.

SYSTEM VARIABLES AND EDUCATIONAL INNOVATIVENESS
IN THAI GOVERNMENT SECONDARY SCHOOLS

By
Floyd Shoemaker

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Communication

1971

ACKNOWLEDGMENTS

The author expresses his sincere appreciation to the chairman of his doctoral committee, Dr. Everett M. Rogers, for his assistance, friendship, and support throughout the development of the present dissertation and during the writer's entire graduate program. Without his friendly encouragement after the author left the Michigan State University campus to return to teaching, this study would not have been completed. Personal thanks is extended to the other members of the author's doctoral committee: Dr. Eugene Jacobson of Psychology, and Drs. Hideya Kumata, Randall Harrison, and Lawrence Sarbaugh of the Department of Communication. Their wise and kindly counsel are reflected throughout the pages of the dissertation.

Other persons who assisted the author, both directly and indirectly, during the course of the study which resulted in the present dissertation, include Richard Joyce, Nan Lin and Donald Schwartz, all of whom contributed to the Thailand Diffusion Project in some way, and Frederic J. Mortimore who carried out the field research.

My family, which expanded by one during the course of the dissertation, were understanding of the Saturdays, Sundays, and nights when the writer was locked up in his study and "could not be disturbed" with children's questions. My wife, Connie, provided constant energy and support for the project and assumed responsibility for guiding family affairs in the absence of a full-time husband.

TABLE OF CONTENTS

	Page
LIST OF TABLES	vi
LIST OF FIGURES.	.vii
 CHAPTER	 Page
I INTRODUCTION	1
Types of Innovation-Decisions	4
The Setting of the Present Study.	7
Phase One Research	8
Phase Two Research	9
Phase Three Research	10
Criteria for Selection of Innovations	10
Description of Innovations Selected	13
Definition of Concepts.	20
Objectives of the Present Study	22
 II A THEORETIC RATIONALE.	 25
Review of Literature on System Effects.	25
A Typological Classification.	27
System Effects in Diffusion Research.	28
System Analysis	33
Theoretic Rationale for System Effects.	34
Criteria for Selection of Variables	36
Dependent Variables.	36
Independent Variables.	37

TABLE OF CONTENTS (Continued)

CHAPTER	Page
III	RESEARCH METHODOLOGY 45
	Background of the Thailand Diffusion Project. 45
	Sampling Procedures 48
	Instrument Construction 51
	Independent Variables. 52
	Dependent Variables. 54
	Deriving Concentration Ratios 57
	Methods of Determining System Effects 60
	Analyzing Data to Test Hypotheses 61
IV	FINDINGS 64
	Theoretic Hypothesis One. 65
	Theoretic Hypothesis Two. 69
	Theoretic Hypothesis Three. 70
	Theoretic Hypothesis Four 70
	Theoretic Hypothesis Five 71
	Theoretic Hypothesis Six. 72
	Theoretic Hypothesis Seven. 73
	Theoretic Hypothesis Eight. 74
	Theoretic Hypothesis Nine 76
	Theoretic Hypothesis Ten. 77
	Theoretic Hypothesis Eleven 77
	Theoretic Hypothesis Twelve 78
	Theoretic Hypothesis Thirteen 79
	Theoretic Hypothesis Fourteen 79
	Theoretic Hypothesis Fifteen. 80
	Theoretic Hypothesis Sixteen. 81

TABLE OF CONTENTS (Continued)

CHAPTER	Page
V	
SUMMARY AND CONCLUSIONS.	83
Summary	83
Conclusions	87
Recommendations for Future Research	92
Implications for Action	95
BIBLIOGRAPHY	98
APPENDIX A: Survey Instrument	103

LIST OF TABLES

TABLE		Page
1-I	Classification of the Innovations Studied in Thailand.	12
1-III	Total and Regional Figures for Sample Schools	50
2-III	Predicted Relationships between Independent and Dependent Variables.	55
1-IV	Correlation between Independent and Dependent Variables of Empirical Hypotheses.	66

LIST OF FIGURES

FIGURE		Page
1-III	An Illustration of the Lorenz Curve Indicating Concentration of Sociometric Opinion Leadership	58
2-III	Illustration of a Communication Network as Represented by a Sociogram, a Binary Matrix (A) and its Corresponding Squared Matrix (A^2).	59

CHAPTER I

INTRODUCTION

The behavior of people in organizations is still the behavior of individuals, but it has a different set of determinants than behavior outside organizational roles. Modifications in organizational behavior must be brought about in a different manner. Daniel Katz and Robert L. Kahn, 1966, p. 391.

Diffusion research, defined as the study of the process by which an innovation spreads among members of a social system (Rogers and Shoemaker, 1971), originated in the United States in the late 1930's when rural sociologists began asking farmers to recall how they learned about and adopted new agricultural ideas. These early investigations were largely sponsored by the sources of innovation, such as the state and federal extension services, so that change agents, i.e., county extension agents, could speed up the diffusion and adoption of new ideas like hybrid seeds, improved weed sprays, and new tillage practices.

This beginning left an indelible mark on the approaches, concepts, methods, and assumptions of diffusion research more than 30 years, and 1,700 investigations, later. These "biases" inherited from research ancestors are often inappropriate to research today. The most important biases which diffusion researchers adopted from their historical past, include:

- (1) A research focus upon the receivers, rather than the seekers, of innovation.

- (2) Sponsorship by the sources of innovations, rather than by individuals seeking solutions to their problems.*
- (3) Data gathered from individuals as the sole unit of response.

The bias for intra-personal variables largely excluded from investigation social-structural or system variables. Diffusion researchers implicitly assumed that because individuals were the unit of response, that they also had to be the unit of analysis.

All but a handful of the more than 178 studies of diffusion of innovations in U.S. educational institutions utilize the individual as the unit of analysis; these 178 studies commonly analyze data from a single source, the school superintendent or chief administrative officer (Carlson, 1965). Such research on organization-to-organization diffusion provides important findings, but only on the nature of the transmission of new ideas from one social system to another, rather than on the process which takes place within the social system.

By ignoring within-organization diffusion, social scientists have distorted the reality of how most innovations reach their ultimate adopters. Also, they have missed the opportunity to study change in a social-structural framework of high theoretic relevance.

How decisions to adopt or reject new ideas are made by organizational members can provide valuable insight into the influence of authority and of social structures on individual decisions. When studying

*Notable exceptions to source-sponsored diffusion research are the investigations of the late Professor Paul Mort, of Columbia University Teachers College, who focused upon between-organization innovation diffusion. Mort's studies were financed by public schools.

authority decisions^{*}, social scientists should be interested in independent variables other than those commonly measured in educational diffusion studies. They should begin to study the interrelationships of interpersonal variables, including:

- (1) Patterns of communication and decision-making
- (2) Self-perceptions of members
- (3) Status homophily
- (4) Opinion leadership concentration
- (5) Psychological distance from superiors
- (6) Etc.

The research reported here, on the diffusion of educational innovations within and among the secondary schools of Thailand, is one of the first educational diffusion studies to attempt to measure the effects of the social structure of a system or organization upon the behavior of members within that system. The present study goes beyond the analysis of individual characteristics and measures characteristics of the social system (i.e., the school) in which the individuals (who are teachers whose behavior this research seeks to explain) work.

Hypotheses tested in the present study involve two units of analysis: (1) the individual teacher respondent, and (2) the school or social system. In both cases the unit of response is the individual teacher or the principal of the school. Individual responses are aggregated to produce school-level indices.

^{*} Authority decisions are those forced upon an individual by a person in a superordinate position, such as a principal in a school system forcing an educational innovation on a teacher.

Types of Innovation-Decisions

Nearly all studies of the diffusion of innovation completed to the present, have focused upon voluntary (or optional) decisions by one, or many individuals, to begin using a new idea. Few studies have been made of change involving group decisions; largely ignored in U.S. research, as well as in investigations outside the U.S., are innovation-decisions by collectivities, by directive from authorities, or adoption by coercion.

Most diffusion studies have been concerned with individual adoption of innovations because the investigations were largely done by rural sociologists whose central concern was the transmission of farm innovations from agricultural scientists to individual farmers. In a typical diffusion study, the dependent variable was knowledge about the innovation or the innovativeness of an individual.

Diffusion research tended to concentrate almost exclusively on the individual as the unit of analysis because the innovations of interest to investigators were those new ideas most appropriate for individual adoption and use. Thus, anthropologists investigated the diffusion of steel axes among stone-age Australians (Sharp, 1952); medical sociologists traced the adoption of a new wonder drug among Illinois doctors (Katz and Menzel, 1954; Coleman, and others, 1957), and rural sociologists mapped the adoption of hybrid seed corn among Iowa farmers (Ryan and Gross, 1943).

The relationship between the social system, and the decision to adopt or reject an innovation, can be described by the following typology of innovation-decisions.

1. Optional decisions--are those innovation-decisions which are made by individuals regardless of the decisions made by other

members of their social system. However, every individual decision is generally influenced by the norms of the social system and the pressures of the group to which that individual belongs or aspires to belong. For example, the decision of a college student to stop wearing glasses and to begin wearing contact lenses, an Iowa farmer's decision to plant hybrid seed corn rather than an open-pollinated variety, and a wife's adoption of birth control pills, are all optional decisions because they can be carried out regardless of the decisions or attitudes of others, provided that the innovations have been invented and are generally available.

2. Contingent decisions--are those decisions made by individuals, but only after the social system has made a prior innovation-decision. The individual is permitted to adopt or not adopt the social system's new ideas, as he chooses. In Thai government secondary schools a teacher's use of audio-visual aids in his classroom is a contingent decision. A teacher can only use audio-visual aids if the school has previously provided such aids for teachers' use. The teacher's decision to adopt and use audio-visual aids is thus contingent upon the decision of the school principal to provide such aids.
3. Collective decisions--are those decisions about which individual members of the social system agree by consensus. All persons must conform to the decision of the social system, once it is made. Most decisions of a representative government are of this type. For example, once a city council decides to fluoridate a city's drinking water, the individual

citizen has little practical choice but to adopt fluoridated water, or to seek a new consensus decision by the collectivity.

4. Authority decisions--are those decisions forced upon an individual by someone in a superordinate power position, such as a supervisor in an organization. The individual's attitude toward the innovation is not the prime force in his adoption or rejection; he is told of, and expected to comply with, the innovation-decision of his superior in the organization.

In summary, four types of innovation-decisions can be categorized by the degree to which the individual has some influence in the decision:

- A. Individual has a decreasing degree of influence in the innovation-decision.
 1. Optional decisions
 2. Contingent decisions
 3. Collective decisions
- B. Individual has no influence in the innovation-decision.
 1. Authority decisions

One source of resistance to organizational innovation is the prevailing system of hierarchical levels. The decision-making unit of the organization is the upper level of executives, but the implementing or adoption unit usually is the lower-level employee. Even if the employee initiates some new idea, via a communication channel such as the company suggestion box, he cannot implement that idea until it has been sanctioned at higher levels of the hierarchy.

The two types of units involved in authority innovation-decisions can be categorized as:

1. Decision unit--which is the individual, group, or other unit that has authority in the organization to determine whether the employee will adopt or reject the innovation.
2. Adoption unit--which is an individual, group, or other unit that functionally adopts an innovation and implements the decision of a superordinate authority.

Innovations can be adopted most quickly by authority decisions in which subordinates of the organization have no voice. One reason why public schools often lag behind industrial organizations in adopting change is that many educational innovations are collective or contingent rather than authority decisions. Although the rate of innovation adoption may be faster in a more autocratic organization, there may be a less favorable attitude toward change among its members, more discontinuance or partial adoption, and more circumvention of the decision to adopt in such an organization. Where compliance is dependent upon public surveillance, change may not persist when the surveillance is removed (Kelman, 1961). Involvement and participation in the planning, collection, and interpretation of information initiates powerful forces for individual change (Mann, 1957).

The Setting of the Present Study

The present dissertation is based upon the analysis of data from one portion of a larger, more comprehensive educational diffusion project conducted by the Institute for International Studies in Education and the Department of Communication, both of Michigan State University, and sponsored by the U.S. Agency for International Development of Washington, D.C., and the Inter-University Research Program in

Institution-Building, headquartered at the University of Pittsburgh. The IURP Consortium, financed by the Ford Foundation and U.S. AID, is concerned with studying the process of institution-building in developing countries.

The diffusion project study was designed to investigate the spread of educational innovations, and their adoption or rejection, in Thai government-sponsored secondary schools. Specifically, an effort was made:

1. To determine how decisions about the use of new educational ideas are made by a centralized educational organization, such as the Thai Ministry of Education, which has been heavily influenced by U.S. educational practice. This includes determination, in-so-far as possible, of the origin of educational innovations in Thailand, their sponsorship and entry into the social system, and their evaluation and eventual recommendation to government-sponsored secondary schools.
2. To determine the variables related to knowledge of innovations, favorable attitudes toward innovations, and innovativeness of three hierarchical levels of the Thai educational bureaucracy, the teachers, principals, and changwad educational officers of the school structure.
3. To determine how educational innovations spread to teachers, principals, and changwads, through the hierarchical structure of the Thai Ministry of Education.

Phase One Research

The Thailand diffusion study was conducted in three phases: Phase One was a pilot study of innovation diffusion in three Michigan public high schools. Experience gained in the pilot study contributed to instrument-construction and data-analysis techniques in the Phase Two research. The results of the pilot research are reported in Lin and others (1966).

Purpose of the pilot study was to examine the factors, or indicators, associated with various degrees of individual innovativeness

within an organization, such as a public high school. Teachers were the unit of analysis.

The study tested the paradigm of innovation diffusion within an institutional setting and suggested two new dependent variables in studies of organizational diffusion: (1) the individual's innovation internalization (the degree of attitudinal acceptance of an innovation), and (2) the individual's change orientation (self-perceived willingness to adopt new ideas).

Phase Two Research

In Phase Two of the Thailand Project, Frederic J. Mortimore, then of the Institute for International Studies in Education at Michigan State University, spent six months in Thailand collecting data from 629 secondary school teachers, 38 secondary school principals, and 66 changwad education officers, the Thai equivalent of the educational supervisor within the Thai Ministry of Education.

In Mortimore's study (1968), the unit of analysis was the individual teacher. The purposes of the Phase Two investigation were:

1. To determine how decisions to adopt or reject new educational practices in Thai secondary schools are made by officials of the Ministry of Education.
2. To determine how educational innovations are diffused to Thai secondary schools.
3. To determine the degree of perceived beneficiality of innovations adopted by Thai teachers.
4. To delineate personal, interpersonal, and perceptual variables which contribute to the change orientation of Thai teachers.
5. To formulate strategies for bringing about desirable change in Thailand's secondary education system.

Phase Three Research

The present dissertation represents the third and final phase of the Thailand Educational Diffusion Project. It utilizes data from the Phase Two study, but also includes data from Thai principals and aggregate school data. The present research is designed to overcome one "egregious shortcoming" (Rogers and others, 1969, p. 175) of the earlier Thailand research, the failure to include system variables in the data-analysis procedures. The inclusion of social system variables in the present analysis may enhance the many low correlations discovered in the Phase Two study, where total variance explained ranged from .70 percent for the contribution of "age" in explaining variance in adoption, to a high of 5.65 percent of the variance in awareness scores contributed by years of teaching experience.

Criteria for Selection of Innovations

In the present investigation, ten educational innovations were selected for study according to the following criteria:

1. At least half of the innovations studied should reflect system (Ministry) and school (Principal) adoption decisions, which would require compliance by the subordinate units (schools) or individuals (teachers) within the system. Six of the innovations chosen represented authority decisions.
2. Some of the innovations adopted by subordinates should require prior adoption by a superordinate individual (Principal) or agency (Ministry) before the individual (teacher) could choose to adopt or reject the innovation. These are innovations

requiring contingent decisions by teachers, after the social system has already adopted. Two of the innovations selected were of this type.

3. The adoption of certain innovations by the school as a decision unit should require, as a condition of individual teacher adoption, expenditure of non-appropriated school funds. Five of the innovations represented this type.
4. The adoption of certain innovations by individual teachers should require that they learn to manipulate mechanical devices. Three of the innovations selected represented this type.
5. The adoption of certain innovations should represent a marked departure from "traditional" or pre-World War II educational practices. Five of the innovations chosen were of this type.
6. Certain innovations should have been known in Thailand for at least a decade (before 1955) prior to the start of the study. Five innovations selected were of this type.
7. Some of the innovations should have been introduced in Thailand since 1955. Three innovations chosen were of this type.

Using these criteria, a four-man panel of education and communication researchers identified ten educational innovations for study as described in Table 1-I (Rogers and others, 1969, pp. 38-39). Following is a description of each of these innovations together with (1) the approximate year of introduction in Thailand, (2) the means by which the innovation was introduced into the educational system, (3) the channels used to diffuse the innovation, and (4) comments on how each innovation was employed in schools visited by the Project research staff.

TABLE 1-I
CLASSIFICATION OF THE INNOVATIONS STUDIED IN THAILAND

	Vocational Education	Use of Library	Parent-Teacher Association	Peace Corps Volunteers	Departmental Organization	Guidance Counseling	Classroom Discussion	Audio-Visual Aids	Objective Tests	Coeducation
1. a. System or school management decision requiring compliance by individual teacher	X	X	X	X	X	X	X	X	X	X
b. System or school management decision requiring compliance by individual teacher not involved		X								
2. a. Adoption by individual teacher requires prior adoption by superordinate unit or individual	X	X	X	X	X	X	X	X	X	X
b. Adoption by individual teacher does not require prior adoption by superordinate unit										
3. a. Teacher adoption requires expenditure of non-appropriated funds	X	X	X	X			X		X	
b. Teacher adoption does not require expenditure of non-appropriated funds					X	X	X	X	X	X
4. a. Teacher adoption requires operation of mechanical devices	X			X	X	X	X	X	X	
b. Teacher adoption does not require operation of mechanical devices			X	X	X	X	X	X	X	X
5. a. Adoption represents very marked departure from traditional practice	X	X	X	X	X	X	X	X	X	
b. Adoption represents moderate departure from traditional practice		X	X	X	X	X	X	X	X	
c. Adoption represents only slight departure from traditional practice										X
6. a. Innovation introduced before World War II		X	X	X	X	X	X	X	X	X
b. Innovation introduced since World War II, but before 1955	X									
c. Innovation introduced since 1955				X	X	X	X	X	X	X

Description of Innovations Selected

I. Class Discussion Method of Instruction: This innovation is defined as the encouragement by teachers of student participation in class in a two-way exchange of information on subject matter, for the purpose of developing among students (1) analytical thought, (2) problem-solving ability, (3) students' ability to express themselves clearly and concisely.

Because of continental European influence, the Thai educational system traditionally has relied almost exclusively upon the lecture as the means of instruction, requiring students to keep notes on lectures and to commit this information to memory for verbatim recitation. Factors which help to account for this reliance upon lectures and memorization include (1) school graduation, university entrance, and civil service examinations which are largely tests of the individual's rote memory, (2) a general shortage of printed textbooks, (3) a lack of preparation of government secondary school teachers, half of whom are not qualified to teach their courses, by Ministry of Education standards, and (4) a Thai cultural norm of deference of pupils to their teachers, which makes it difficult for Thai teachers to accept a challenge to their authority by students.

First use of class discussion in Thai schools was sometime shortly after World War II. The method of introduction into the system was the return of Thai educators from the United States, where they observed class discussion in use. Another possible channel was the establishment of a College of Education at Prasarn Mitr in 1954, patterned on an American model. Faculty members, who largely were drawn from Indiana University in the United States, used class discussion extensively.

Although 62 percent of the teachers of sample schools said that they used classroom discussion, its use was observed infrequently by researchers who visited the schools. For the most part, the instructional method most observed by researchers was lecture with "choral response" and individual recitation. Only 13 percent of sample teachers attended Prasarn Mittr College of Education where they might have had an opportunity to observe classroom discussion. This suggests that the classroom discussion technique is probably used only sparingly, but by a high percentage of Thai teachers.

2. Use of Objective Tests: This innovation is defined as use of those tests which utilize questions requiring predetermined, forced or multiple-choice, responses. Such examinations are used in the U.S. to replace essay questions, because of a purported advantage of widely sampling the total range of subject matter and the greater objectivity in scoring.

The innovation was introduced into Thai schools by UNESCO specialists who worked with Cha Choengsao Pilot Project schools in 1950-51. Two Thai educators closely associated with objective testing, Dr. Paiboon Ratanamangala and Dr. Chawan Paratagul, both received their graduate degrees in the United States. Dr. H. C. Burrow, a UNESCO specialist in English language instruction, also was influential in diffusing information about objective tests in Thailand.

3. Use of School Library as a Teaching-Language Resource: This innovation is defined as a teacher requirement that students read assignments from books in the school library.

The first secondary school library was established in 1907 at King's College, Palace School for children of the Royal Family. In 1952, the

Ministry adopted a policy that all government secondary schools should establish a library. Rejabapit School in Bangkok was the first government secondary school of Thailand to require regular use of the library by its students.

In 1956, the Ministry's Department of Secondary Education appointed a library supervisor who had just returned from the United States with a masters degree in library science. That same year the Thai Ministry of Education and U.S. AID initiated the General Education Development (GED) program, a ten-year project to improve education in the provinces.

The Library Association of Thailand, a voluntary association, has promoted improvement of government school libraries since 1955. The Association publishes a bi-monthly Library Bulletin, sponsors an annual meeting for librarians from throughout the kingdom, encourages Association chapters at the changwad level, sponsors a traveling book display, and offers (in cooperation with the Ministry of Education) a nine day inservice training program in library work for government school teachers.

However, government schools do not receive Ministry funds for the purchase of library books, so schools must rely upon gifts and special library fees collected from students. Lack of Ministry appropriation is also responsible for the fact that few secondary schools hire full-time librarians. Teachers are appointed to supervise the library on a part-time or overload basis.

Among schools visited, the libraries varied widely. In smaller, rural schools, the library frequently consisted of popular magazines and a few books piled in one corner of a classroom. In larger schools, books were neatly filed on shelves, and classified by subject matter. Whether large or small, most school libraries were little used. Many

librarians appeared to prefer that books remain shelved rather than encouraging their circulation.

4. Use of Audio-Visual Aids: The innovation is defined as the use of taped and recorded materials, moving pictures, slides, and film strips, to distinguish them from those audio-visual aids, such as maps, charts, globes, and printed pictures, which have been used in Thai schools for many years.

The audio-visual aids studied were first used on a large scale in UNESCO-sponsored adult education programs begun in 1950 at Cha-Choengsao. Many school teachers from throughout Thailand observed the experiment and widely diffused the innovation. Prasarn Mittr College of Education in Bangkok maintains an audio-visual training center, and offers a course for prospective teachers.

Most of the films, film strips, slides, tapes and records used in Thai schools are provided by the U.S. Information Service, private foreign firms, or foreign consulates, since the Ministry does not produce such materials or provide money or equipment necessary for the use of audio-visual aids.

5. Coeducational Schools: The innovation is defined as the mixing of boys and girls in classes in one school. Prior to World War I, many elementary and secondary schools were coeducational, but because of British influence, a preference developed in the 1920's for separate secondary schools.

At the behest of Dr. Willis Porter, professor at Indiana University, the Ministry of Education reconsidered its position on separate secondary schools and decided in 1950 that all secondary schools in amphur capitals would be coeducational. Financial considerations and a

shortage of teachers played a significant role in the decision. The first coeducational teacher-training institution in Thailand was opened at Chiangmai in 1950.

In all coeducational secondary schools of the sample, boys and girls were seated separately, though in the same classroom, and sexes were segregated in most extra-curricular activities. However, many schools reported as separate schools by the Ministry are actually coeducational because boys of many provincial capitals who wish to enroll in arts courses attend schools officially designated as "girls" schools, while girls wishing to enroll in science frequently attend schools designated as "boys" schools.

6. Use of Peace Corps Volunteers: The decision to request American Peace Corps volunteers for use in Thai schools was made in 1961, and the first volunteers arrived in 1962. Many more schools request Peace Corps volunteers than can be provided by the U.S.

Peace Corps volunteers experience a wide range of problems in Thai schools. Many reported that they felt they could be used more effectively, but nearly all expressed enjoyment in their work.

7. Guidance Counseling: The innovation is defined as the provision for vocational or career guidance in the school. Guidance counseling was first introduced in Thai schools in 1958.

The first inservice teacher training programs devoted to vocational guidance were sponsored by the Ministry's Supervisory Division in June of 1966. However, both Prasarn Mittr College of Education and Chulalongkorn University have offered per-service elective courses in guidance counseling for several years.

9-

ti

cu

p

ti

s

a

d

s

d

d

t

e

v

s

i

g

z

z

at

s

di

One of the prime problems for guidance counselors is gaining adequate knowledge of the Chinese business community of Thailand, since the Chinese have a near monopoly on commerce.

Field observations tended to indicate that vocational guidance counselors lack the necessary training and information to adequately perform their task. Although 11 of the sample school principals said their school offered vocational counseling, only two counselors had special training in the area; one had enrolled in two counseling courses at Prasarn Mittr College of Education and the other had attended a ten day inservice training institute on vocational guidance.

8. Vocational Education: The innovation is defined as the provision by the school of vocational or pre-vocational crafts and/or skills designed to prepare students for employment in a specific vocation.

Apparently a widespread feeling exists among Thai parents and students that vocational education is an inherently inferior type of education. Educational officials have done little to overcome this stereotype, except in those instances where foreign grants were available to finance vocational programs.

The first postwar effort to develop vocational education at the secondary level was launched in 1950 with funds provided by UNESCO. In 1957, another experimental pre-vocational program was launched in government secondary schools. Designated as "General Education Development," the project was sponsored jointly by the U.S. Agency for International Development and the Thai Ministry of Education. A third large and well financed vocational program was recently launched with UNICEF support.

Field observations indicated that vocational teachers generally disdain handling tools and equipment, being extremely conscious of

their status as "educated men." Therefore, students are not taught how to use equipment, but rather are taught about the use of equipment. However, instruction in domestic arts for the girls appears to be better organized and staffed. Cooking and sewing classes appear to be well taught by female teachers who apparently do not find work in the kitchen beneath their dignity.

9. Parent-Teacher Associations: The parent-teacher association was introduced to Thailand by a Ministry of Education official who visited the U.S. in 1955. In 1957, a P.T.A. was established at Satri Wittaya, and continues to function. Since 1960, principals from schools in Bangkok and 20 different provinces have visited Satri Wittaya to observe and discuss the P.T.A. in operation. However, there is no national P.T.A. organization in Thailand, and the Ministry has not shown interest in forming a nationwide federation of the organizations.

10. Departmentalization of Government Secondary Schools: The Ministry of Education recommends that any school with more than 18 teachers and/or any school employing more than three teachers to teach one subject should departmentalize by subject matter. Courses in educational administration at Prasarn Mittr College of Education give considerable attention to the innovation, as do numerous articles in professional education journals of Thailand. However, discussions with sample school principals indicated little interest in the innovation, except among principals supervising schools with 20 or more teachers.

The remainder of this chapter is devoted to a definition of the concepts utilized throughout the dissertation and to a presentation of the objectives of the study described here.

Definition of Concepts

1. Teacher Innovativeness: defined as the degree to which an individual is relatively earlier in adopting new ideas than other members of his social system (Rogers, 1962, p. 20).

2. School Innovativeness: defined as the degree to which a school is relatively earlier in adopting new ideas than other schools of the social system.

3. Social System: defined as a "collectivity of individuals, or units, who are functionally differentiated and engaged in collective problem-solving with respect to a common goal" (Rogers with Shoemaker, 1971, p. 39). The members, or units, of a social system may be teachers within a school or a school within an educational system. The common objective or goal binds the social system together.

4. System Effects: defined as the influences of a system's social structure on the behavior of members or units within the social system (Rogers with Shoemaker, 1971). System effects are sometimes referred to as "compositional effects," "contextual effects," or "structural effects."

5. Cosmopoliteness: defined as the "degree to which an individual's orientation is external to a particular social system" (Rogers, 1962, p. 183).

6. Mass Media Exposure: defined as the receipt of messages transferred via channels such as newspapers, magazines, film, radio, and television, which enable a source of one or a few individuals to reach an audience of many (Rogers with Shoemaker, 1971).

7. Innovation: defined as "an idea, practice, or object perceived as new by an individual" (Rogers with Shoemaker, 1971).

8. Attitudinal Acceptance of an Innovation: defined as the "extent to which a teacher perceives an innovation as relevant and valuable to his role performance in the school" (Linn and others, 1966, p. 60).

9. School Awareness: defined as first exposure to new ideas, but lacking complete information necessary to the utilization of that idea (Rogers with Shoemaker, 1971).

10. Opinion Leadership: defined as the "ability to informally influence other individual's attitudes or behavior in a desired way with relative frequency" (Rogers with Shoemaker, 1971).

11. Opinion Leadership Concentration: defined as the degree to which personal influence is vested in one or a few persons rather than being diffused throughout the social system (Guimarães, 1970).

12. Decision-making: defined as "the process by which an individual evaluates the meaning and consequences of several courses of action or chooses desirable alternatives" (Rogers with Shoemaker, 1971).

13. Roles: defined as standardized patterns of behavior required of all persons playing a part in a given functional relationship (Katz and Kahn, 1966).

14. Feedback: defined as information from the receiver transmitted back to the source about the changed condition of the receiver (Westley and MacLean, 1957).

15. Psychological Distance: defined as the individual's perceptions of the extent of "inequality" existing between himself and his superior (Mulder, 1960).

16. Role Satisfaction: defined as the "extent to which an individual is satisfied with his work and his working environment" (Lin and others, 1966, p. 18).

17. Participation in Decision-Making: defined as the "extent to which an individual perceives himself to be taking part in relevant decision-making activities" (Lin and others, 1966, p. 19).

18. Role Performance Feedback: defined as the "extent to which an individual's superior indicates how he is performing his duties as a teacher" (Lin and others, 1966, p. 19).

19. Communication Integration: defined as the degree to which individuals of the social system interact directly on a face-to-face basis rather than through liason persons (Guimarães, 1970).

Objectives of the Present Study

One of the objectives of the present investigation is to determine the variables related to school innovativeness, school attitudinal acceptance of innovations, time of school awareness, and teacher innovativeness of government sponsored secondary schools of Thailand. A second objective is to test for the existence of system effects^{*} in a cultural setting divergent from that of the United States where most previous educational diffusion research has been carried out. Characteristics of a formal organization, in this instance a Thai secondary school, are used to predict innovativeness of individual members of that social system.

Previous diffusion studies, reviewed in Chapter II of the present dissertation, tend to indicate that some characteristics of the social system have an affect on the individual's innovativeness within that social system; however, such studies generally do not indicate how much influence a particular system exerts.

*System effects are also referred to as "structural effects" by Blau (1957), and "compositional effects" by Davis and others (1961) and by Qadir (1966).

All human behavior can be measured at two levels: the individual and the social system level. Change which occurs at the individual level is frequently labeled adoption, modernization, acculturation, learning, or socialization. Measurement of individual behavior is the micro-analytic approach to change analysis (Rogers with Shoemaker, 1971).

Change also occurs at the social system level, where it is referred to as development, specialization, integration, or adaptation. The macro-analytic approach utilizes the social system as the unit of analysis (Rogers with Shoemaker, 1971).

Both types of change are closely interrelated. For example, if a school is regarded as a social system, as it is in the present study, then the school system's adoption of a library may lead to individual teacher decisions to alter their teaching behavior by making student assignments in books from the new library. Similarly, the aggregation of many individual changes produces a system-wide alteration.

Most educational diffusion research has treated teachers as if they did not work in schools, and as if the school system did not have an important affect on each teacher's diffusion behavior. It is important, however, to note that all diffusion occurs within a social system and that the social system affects an innovation's diffusion pattern.

To the extent that individuals within a social system are functionally differentiated, structure exists within that system. Social structure develops through the arrangement of positions in a social system. A formal organization, such as a secondary school in Thailand, has a highly developed social structure, consisting of superordinate-subordinate positions, giving those of higher-ranked status the authority to issue orders to those of lesser rank. Even informal groupings have

some level of structure inherent in the interpersonal relationships of the members. This structure determines who interacts with whom, and under what circumstances this interaction will take place. Both formal and informal social structures have an affect on human behavior, and on the responses that individuals make to communication stimuli.

A basic hypothesis underlies the present study:

The properties of a system exert influence over an individual member's behavior.

This hypothesis is predicated upon an examination of organizational literature which documents the effect of social structures on changes in human behavior. The influence of group pressure is demonstrated in the research of Lewin (1947), Coch and French (1948 and 1961), Pelz (1956), Vroom (1960), Seashore and Bowers (1963), and Maier and Hoffman (1961), among others.

Given this basic hypothesis concerning the behavior of individuals in organizations, a main thesis can be advanced that:

More variance in individual behavior can be explained by utilizing both individual and system variables than by using individual variables alone.

This thesis will be tested in the present study.

CHAPTER II

A THEORETIC RATIONALE

The three-fold purpose of the present chapter is to briefly review the literature on system effects in general beginning with Durkheim's research at the turn of the twentieth century and continuing to the present, and to focus specifically upon diffusion studies which include system effects in the analysis. Also, Chapter II establishes a criteria for the selection of variables for inclusion in the present study and sets forth a theoretic rationale for each proposed relationship of independent and dependent variable.

Review of Literature on System Effects

It is important that diffusion researchers remember that most individuals work within organizational settings, such as schools, hospitals, prisons, and business firms, which have an impact upon those individuals' behavior as regards the adoption or rejection of new ideas. Perhaps the most obvious reason for scientific interest in social structural, or system, variables, is that these variables have an important influence upon individual behavior, either limiting or reinforcing that behavior with respect to certain decisions.

It is with his fellow teachers that most Thai teachers interact concerning educational innovations (Mortimore, 1968). Thus, the characteristics and attitudes of colleagues should have an important

1

1

t

w

i

e

O

S

S

va

it

effect upon the knowledge of, attitudes toward, and adoption of, new ideas by the individual teacher.

Though diffusion researchers discovered the importance of social structural variables only recently, the concept of "system effects" can be traced beyond the 20th century. One of the earliest mentions of the concept is in a sociological study by Durkheim (1897), who discovered that suicide rates varied widely among various religious bodies, but that suicide rates for members of a religion were much lower when the individuals of that religion were a minority within the society.

Groves and Ogburn (1928) found that the marriage rates of men and women varied in opposite direction to the sex ratio of the communities in which the subjects lived. Faris and Dunham (1939), in their study of the ecological distribution of home addresses of psychotics in Chicago, discovered that psychosis rates were higher for Negroes living in white areas and whites living in Negro areas, than for the same races when living in areas where they made up the majority of the population.

Stouffer and others (1949), studying attitudes of U.S. soldiers during World War II, found that an individual's attitude toward promotion was influenced by the general rate of promotion of the unit in which he served. Promotion was valued more highly in those units where group promotion rates were low, and less highly in units where promotion rates were high. Promoted soldiers were less critical of the military promotion system than non-promoted soldiers, but criticism was greater among both promoted and non-promoted soldiers in those units with high rates of promotion.

More recent studies which have demonstrated system effects include:

1. Berelson and others (1954) showed the effects of community composition in party affiliation, upon individual voting behavior.
2. Lipset and others (1956) found system effects in their study of political voting preferences in a U.S. labor union.
3. Blau (1960) observed that values in work groups (in a public assistance agency) had effects upon the conduct of individuals within the group. In some cases the group's values and the individual's orientation had similar, but independent, effects on the conduct of the individual; in other cases, they had opposite effects; and in still others, the effects of the individual's orientation were contingent upon the prevalence of this orientation in the group to which he belonged.
4. Reiss and Rhodes (1961) discovered that community or neighborhood norms on juvenile delinquency had an influence on the probabilities of a youth, living within that community, becoming delinquent.
5. Davis and others (1961) encountered system effects in their study of the Great Books reading program.

A Typological Classification

Several units may form the basis of analysis in studies of the diffusion of innovation. As Chapter I attempts to point out, in most of the diffusion research completed to date, the unit of response and the unit of analysis have been one and the same, the individual. However, the simplified typological classification presented below illustrates that there are several other possible types of analyses:

		Independent Variable	
		Individual System	
Dependent Variable	Individual	Type I	Type II
	System	Type III	Type IV

Most past diffusion research has been of the Type I study which focuses upon individual characteristics of the receiver, and the effects of these characteristics upon the receiver's individual decision to adopt or reject an innovation. For instance, the relatively earlier adopters of a social system in the United States have generally been found to be better educated, to be younger in age, to have a higher social status, to operate a more specialized farm, to have more wealth, and to exhibit a different type of mental ability than later adopters (Rogers, 1962, pp. 171-178). Socioeconomic, demographic, and socio-psychological variables have previously been most commonly utilized as independent variables in explaining individual innovativeness.

However, individuals involved in innovation decision-making do not exist in isolation, particularly if they are employed in a complex organization. They are surrounded by a myriad of influences ranging from the norms of the social system to the cosmopolitaness, mass media exposure, and educational level of others in the same social system.

The present study seeks to explain an additional amount of variance in individual innovativeness by taking into account system variables. Hypotheses proposed at the end of the present chapter are of both Type II and Type III analyses, predicting individual influences upon the innovativeness of a social system and social system influences upon the innovativeness of individuals.

System Effects in Diffusion Research

Recently, diffusion researchers have suggested that system effects may be of importance in explaining individual behavior in the adoption of innovations. For example:

1. In a large-scale analysis of the diffusion of educational innovations to 629 teachers in Thai government secondary schools, Mortimore (1968) found low correlations, most of which were not significantly different from zero, between 51 independent variables and three dependent variables: awareness, adoption, and perceived beneficiality of innovations. The investigator hypothesized that these low correlations resulted largely from the fact that system variables were neglected in the study. The 51 independent variables, drawn mainly from experience in U.S. educational diffusion studies, measured important individual characteristics and attitudes, but did not measure school effects on individual teacher behavior.

2. Davis (1968) explored the relationships between individual modernizing characteristics of 1,142 Nigerian farmers, the corresponding system characteristics of each of the 18 villages where the respondents lived, and individual innovativeness. Of primary concern to the investigator was the interaction between two levels of modernizing characteristics in explaining greater amounts of variance in individual level variables and system level variables into account in a multiple correlation analysis, that the amount of variance explained increased from that of individual variables alone.

3. Saxena (1968) tested the existence of system effects in peasant village settings to demonstrate the influence that the system exerted upon individual innovativeness. The social systems studied were eight Indian villages from which 680 Indian farmers were drawn at random for comparison on the basis of their adoption of ten agricultural innovations. Farmers high on both individual and system variables such as credit orientation, social participation, etc., were found to be high on innovativeness.

4. Qadir's (1966) analysis of data from 600 villagers in 26 Philippine neighborhoods revealed that system variables, such as mean neighborhood education and mean neighborhood mass media exposure, were about as important in predicting individual innovativeness as were individual variables, like mass media exposure, education, etc. Operationalizing innovativeness as "the adoption of modern practices," he concluded that in modern systems with a social climate favorable to change, even individuals lacking much education, mass media exposure, or modern orientation, acted in an innovative manner. This conclusion suggests that in many settings, system effects (such as system norms, composite educational level of peers, etc.) may be better predictors of individual innovativeness than individual characteristics.

5. Coughenour (1966), in an intensive study of the normative structure of seven farming localities in Western Kentucky, explained variation in the rate of adoption of innovations. Data were obtained by a survey of beef cattle, hog, and tobacco farmers among the seven locality groups in commercial farming areas. The mean group adoption scores indicated an uneven response of localities to innovations. Four independent variables, mean gross income, prevalence of commercial farming attitudes, social status level, and integration of communication based on technological competence, made the greatest contribution to explaining variance in locality adoption scores.

6. In a similar study, Coughenour (1964) analyzed data on the diffusion of five farm practices in 12 Kentucky localities. He found that rate of adoption of the five innovations was related to socioeconomic and attitudinal resources of each locality and to the nature of social relationships with information sources and media contacts.

7. Flinn (1963 and 1970) studied the influence of community norms in predicting agricultural innovativeness. He defined community norms as patterns of behavior in a social system with both objective and subjective qualities which can be inferred from overt actions and verbal responses. The researcher found that community norms on innovativeness, as inferred from overt actions, accounted for more variation in farmer innovativeness than did any of the other variables studied. Five variables pooled explained only 64.1 percent of the variance in innovativeness; community norms alone accounted for 20 percent of that variance. Regardless of their own attitudes, farmers of communities in which innovators were viewed most favorably were more apt to be innovative than farmers of communities in which innovators were viewed less favorably.

8. Because of a low prediction level in a study of innovativeness among Ohio truck farmers, Rogers and Burdge (1961) included a community variable, "norms on innovativeness," in a reanalysis of their data. The investigators found that the prediction of innovativeness of the truck farmers improved because of inclusion of a social system variable.

9. In his study of 47 Wisconsin townships, van den Ban (1960) classified townships into categories according to the average adoption score of the farmers studied. The investigator observed a significant difference among the four categories in the proportion of high adopters, after controlling for the effects of such variables as 4-H Club membership, size of farm, and net worth. Van den Ban then did case studies of two separate townships, one modern and one traditional, and concluded:

Differences in the adoption of new farm practices between the townships studied can be only partly explained by differences in individual

run

ind

ipa

and

tar

ne

in

no

ch

s:

so

h

t

e

i

characteristics or by values directly affecting farming. Differences in social structure seem to be more important.

10. Duncan and Kreitlow (1954) matched and compared 19 pairs of rural neighborhoods on the adoption of 30 school practices, using an index of 25 farming practices and four measures of organizational participation. The investigators used the neighborhood as the unit of analysis and the mean score of ten respondents in each neighborhood as the acceptance level for the entire neighborhood. They found that heterogeneous neighborhoods were consistently more favorable toward a majority of the innovations, thus indicating the influence of both social structure and norms.

11. Marsh and Coleman (1954) discovered that both socioeconomic characteristics of farmers and their neighborhood of residence were significantly correlated with the individual farmer's innovativeness score. Even when the socioeconomic characteristics of farmers were held constant, the differences in individual innovativeness attributable to differences in neighborhoods still existed.

Summing up his review of the literature on the influence of system effects in the diffusion research tradition, Davis (1968) draws three important generalizations:

1. Although a handful of relatively recent diffusion studies have mentioned system effects as part of an overall research design, few have focused on system effects as the central problem of research.
2. Most diffusion research investigates the influence of personal characteristics of a large number of individuals upon the dependent variable, innovativeness. But typically, diffusion researchers have paid little attention to the socio-cultural and communication environment of the individual studied.
3. If the influence of system effects is considered in the analysis of diffusion data, usually only one

system, a single village, community, or school is analyzed for its influence upon the dependent variable. Few studies include a sufficiently large number of communities or organizations to permit testing of hypotheses about social system characteristics with any degree of rigor.

Systems Analysis

Systems analysis, defined as the investigation of the network of interrelationships among the social, cultural, psychological, and communication variables of a given social system (Davis, 1968, p. 19), is well suited to the study of the diffusion of innovations because of the emphasis which such analysis places upon the complex functional interrelationships among the units of an organization, culture, or social system. It is possible (using modern computer technology) to explore the total network of interrelationships among variables of a given social system, whether a secondary school or a peasant village.

The primary focus of the present investigation is the innovativeness of individual teachers and schools, and the correlates of innovativeness useful in predicting the adoption or rejection of new educational ideas. The present study is designed to test selected hypotheses regarding socio-cultural and communication variables at both the individual and the system level, and their relationship to the dependent variable.

The present research, therefore, departs from traditional system analysis techniques as in engineering or physics, and utilizes selected system variables to explain more variance in the dependent variable than can be explained by attitudinal or behavioral variables alone.

The important characteristic of system analysis utilized in the present study is the collection of data from several levels within the total social system, from subsystems composing the social system, so

analysis can be made of their function within the system under study, in order to predict changes in human behavior.

Theoretic Rationale for System Effects

In considering the effects of system variables in the present analysis, the important question is: "In what ways do the system variables affect the individual teachers' decisions to adopt or not adopt innovations?" Several possible answers exist:

1. First, there is a possibility that differences among the schools sampled in the present study are random differences which could be expected on the basis of chance alone. This would mean that variance in the system variables from school to school is the expression of the normal distribution of such variables, and has no systematic relationship to the dependent variable. In such instance, the investigator would expect to find differences regarding system variables from school to school, but these differences would not be significantly correlated, i.e., would not covary concomitantly beyond chance expectations, with differences in innovativeness in the various schools. Such a situation could be expressed by a general hypothesis:

H_0 = The characteristics of the social system
of the schools are not related to the
innovativeness of teachers of these schools.

2. A second possibility is that differences in the adoption of innovations by individual teachers are associated with variance in a single independent variable among the schools. For example, suppose innovativeness varies beyond chance expectation from school to school. If the presence of a single variable (e.g., teachers' educational level) also varies from school to school, it could be hypothesized that

different levels of education among the school faculty explain the different adoption rates. However, because of the complexity of the total social system of a school, it is not realistic to assume that variance in a dependent variable such as system innovativeness can be explained by one independent variable. The same argument holds true for individual teacher innovativeness.

3. A third possibility, which is the problem of central concern in the present study, is the situation in which a number of individual variables and a number of system variables operate to explain the variance in the dependent variable. Individual teacher A, working in social system Z, would have some score on the dependent variable X, and by its interaction with the mean level for independent variable K throughout his social system. Individual teacher A would have individual scores for every independent variable considered, and the social system would have a mean level for every independent variable included. Thus, individual independent variables and system independent variables (aggregated individual variables) act independently and jointly to influence the dependent variable for teacher A in the social system. The entire social system's position on the dependent variable is represented by some measure of central tendency (such as the mean) for every individual included in the sample. Thus, hypotheses tested in the present research involve two units of analysis: (1) the individual teacher respondent, and (2) the school. In both cases the unit of response is the individual teacher or principal. Teachers' responses are aggregated to produce school-level indices.

rest

due

ed

lin

Sev

lat

ti

sc

by

sc

re

27

20

1

a

i

t

2

25

24

Criteria for Selection of Variables

Variables selected for inclusion in the hypotheses tested in this research were determined on the basis of the following criteria:

1. Generalizations drawn from previous diffusion research, conducted both in the United States and in other countries. However, educational diffusion studies in less developed countries are extremely limited, so diffusion studies conducted in other settings were reviewed. Several educational diffusion studies in developing nations were stimulated by the Thailand Diffusion Project, including: (1) an investigation of educational diffusion among 300 teachers in 30 South India schools by Shaline Bhogle, Ph.D. candidate at Osmania University, Hyderabad, India, and (2) a study among 200 teachers in six pilot schools in Pakistan by Anwar K. Kahn (1968) of the Institute of International Studies in Education at Michigan State University.

2. Earlier analyses of similar data from the Thailand Diffusion Project by project colleagues (Lin, 1966; Lin and others, 1966; Mortimore, 1968; and Rogers and others, 1969).

3. Intuitive and theoretic reasoning. As indicated earlier, very little diffusion research had dealt with the influence of system variables on innovativeness, particularly teacher innovativeness. Previous investigations, therefore, provided only limited empirical support in the selection of variables to be included in the data analysis.

Dependent Variables

1. Time of School Awareness: is one of four dependent variables used in the present study. Research tends to suggest that innovation awareness precedes adoption (Rogers with Shoemaker, 1971) and represents

the beginning of a sequence of activities. Lin (1966) found that awareness was positively correlated with nine independent variables and negatively correlated with two.

2. School Attitudinal Acceptance of Innovation: is the extent to which teachers "perceived the innovation as relevant and valuable to their role performance" (Lin and others, 1966, p. 60). In the Michigan Pilot Study, Lin (1966) discovered that 20 variables were positively correlated with attitudinal acceptance of innovation, as compared to 11 variables which were significantly correlated with innovation awareness.

3. School Innovativeness: is determined on the basis of time of adoption of school innovations. The conventional definition of this dependent variable is "the degree to which a social system is relatively earlier in adopting new ideas than other units of the social system."

4. Teacher Innovativeness: is defined as "the degree to which an individual is relatively earlier in adopting new ideas than other members of his social system" (Rogers, 1962, p. 20).

Independent Variables

The following is a list of the independent variables included in the data analysis. Each independent variable precedes the hypotheses stating the predicted relationships of independent and dependent variable.

1. Perceived Psychological Distance from Principal: While the Thai culture and bureaucratic subculture are generally resistant to change, there is a high value placed upon personalism and status as a guide to individual behavior. It is expected that principals of government sponsored secondary schools would be generally accepting of innovations supported by the Ministry of Education and the Changwad

Educa

that

of in

founo

U.S.

prin

felt

psy

exp

of

e

o

t

c

Education Officers responsible for supervising secondary schools, and that teachers who interact with the principal would be more accepting of innovations supported by him. The Michigan Pilot Study generally found that the more predisposed teachers were to accepting change in U.S. schools, the more likely they were to feel personally close to the principal and to believe that most other teachers in the school also felt close to the principal (Lin and others, 1966, p. 2). Perceived psychological distance between teacher and principal is therefore expected to be negatively related to teachers' attitudinal acceptance of innovations, and to school innovativeness.

TH₁: Perceived psychological distance between teachers and principal is negatively related to the school's attitudinal acceptance of innovation.

TH₂: Perceived psychological distance between teachers and principal is negatively related to school innovativeness.

2. Role Satisfaction: A high level of role satisfaction is expected to lead to security in the position, more interaction with other teachers who also are satisfied with their jobs, and less resistance to or distrust of change. Therefore, role satisfaction is predicted to be positively related to the school's attitudinal acceptance of innovation, and to school innovativeness.

TH₃: Employee role satisfaction is positively related to the school's attitudinal acceptance of innovation.

TH₄: Employee role satisfaction is positively related to school innovativeness.

3. Participation in Decision-Making: Innovations are adopted most quickly by authority decisions in which subordinates of the organization have no voice, as indicated in Chapter I in the discussion of types of innovative decisions. If the principal can adopt the innovation without

consulting the teaching faculty, the change can be accomplished much faster than if he has to talk with every member of the organization before adopting some new idea. It is predicted, therefore, that school innovativeness is negatively related to teachers' participation in decision-making. However, research beginning with Lewin (1947) and stretching through Koch and French (1948), Morse and Reimer (1956), Hoffman and Maier (1959), Vroom (1960) and Lin (1966) tends to indicate that an individual's attitude toward change is positively related to the degree of his participation in decision-making in bringing about that change. Participation in decision-making is expected to be positively related to the school's attitudinal acceptance of innovation.*

TH₅: Employees' participation in decision-making is positively related to the school's attitudinal acceptance of innovation.

TH₆: Employees' participation in decision-making is negatively related to school innovativeness.

4. Performance Feedback: A close relationship between teacher and principal will lessen potential resistance to change suggested by the principal. Frequent discussions between the teacher and principal concerning teaching performance will increase the principal's credibility and decrease resistance to change which he initiates. Awareness of innovations and a general predisposition to accept change were positively

*The logical contradiction which seems to be raised by the two theoretic hypotheses, can be explained in this way. Attitudinal acceptance of innovation and school innovativeness are predicted to be positively related; participation and attitudinal acceptance are also predicted to be positively related. How then, if two sides of the triangle are positively related, can there be a negative relationship between participation and innovativeness, the third side? This can only happen if the magnitude of the positive relationships of the other sides of the triangle are less than unity. Such a prediction is made in the present study.

related to teacher performance feedback in the Michigan Pilot Study (Lin and others, 1966, pp. 1-2).

TH₇: Frequency of role performance feedback to employees is positively related to the school's attitudinal acceptance of innovations.

TH₈: Frequency of role performance feedback to employees is positively related to school innovativeness.

5. Opinion Leadership: Opinion leaders earn and maintain their influence in the social system by their technical competence their social accessibility to others, and their conformity to the norms of the social system (Rogers with Shoemaker, 1971). Research tends to indicate that when social system norms are modern and favorable to new ideas, opinion leaders of that social system are quite innovative. However, when the social system norms are traditional and less receptive to change, the opinion leaders reflect this norm in their behavior (van den Ban, 1960). When the social system is innovative, it is more open to new ideas and social change and thus the opinion leaders, conforming to social norms, are expected to be more innovative.

TH₉: Opinion leaders are more innovative in innovative schools than in non-innovative schools.

In innovative social systems there is more contact with the outside world of new people and new ideas and thus there is more pressure upon the members of that social system to be externally oriented in their perspectives. Therefore, it is expected that opinion leaders of innovative social systems will be more cosmopolite and have a broader knowledge of world affairs.

TH₁₀: Opinion leaders are more cosmopolite in innovative schools than in non-innovative schools.

Because the innovative system is more open and has more contact with the external world, there also is more exposure to the mass media, a prime vehicle of new ideas. To maintain their influence and technical competence, and therefore, their status in the social system, it is expected that opinion leaders of innovative systems will be more exposed to the mass media.

TH₁₁: Opinion leaders are more exposed to the mass media in innovative schools than in non-innovative schools.

6. Opinion Leadership Concentration: In those social systems where opinion leadership is concentrated, a few influentials supply ideas and information to many others. In more traditional social systems, such as Thailand, it is expected that opinion leaders are polymorphic, i.e., a single leader is sought for information and advice about a variety of topics. In more modern social systems, such as the United States, opinion leadership is more monomorphic; that is, a leader is sought for only one type of information and advice, and other leaders are sought for other topics (Rogers and van Es, 1964). Therefore, in the traditional social system of Thailand, with an authoritarian orientation, it is expected that opinion leadership concentration is positively related to the school's attitudinal acceptance of innovations, and to school innovativeness. This prediction assumes that government sponsored secondary schools of Thailand which are more accepting of innovation are more innovative because the polymorphic opinion leaders are themselves more innovative and more favorable to new ideas, and that those schools where opinion leadership is most concentrated there is the most attitudinal acceptance and the most innovativeness.

TH₁₂: Opinion leadership concentration is positively related to the school's attitudinal acceptance of innovations.

TH₁₃: Opinion leadership concentration is positively related to school innovativeness.

7. Communication Integration: Defined as the degree to which individuals of the social system interact on a face-to-face basis, in person or through liason persons, which is expected to have an effect upon the awareness of individuals of proposed innovations which might be beneficial to the social system. In a social system in which there is high communication integration, every teacher speaks or interacts with every other teacher and there are no isolates in the social system. The interaction of teacher with teacher in a highly integrated social system is expected to create an earlier awareness of ideas than the limited interaction of teachers in a less integrated social system. Where there is no communication integration in a social system, all the individuals are isolates and no one talks to anyone else; there is no exchange of information and opinion within such a system. Such isolation is an effective barrier to the creation of early awareness of new ideas, because a message which enters the social system is not passed from individual to individual through informal interaction, but is held by a single individual.

TH₁₄: Communication integration is positively related to early school awareness of innovations.

8. Teacher Mass Media Exposure: Previous diffusion studies indicate that the mass media of communication, a prime source in creating awareness of new ideas, is a crucial factor in promoting innovativeness (Lerner, 1958; Deutschmann and Fals Borda, 1962; and Frey, 1963). Rogers and von Es (1964) found that mass media exposure was highly

correlated with peasant farmers' innovativeness in Colombia, explaining 67 percent of the variance in innovativeness in one village.

Exposure to one channel of mass media is positively related to exposure to other channels in a "centripetal effect" (Rogers with Shoemaker, 1971). Thai teachers are expected to have the literacy level, as a condition of their job, that permits them to expose to print mass media as well as electronic media. A common consequence of this exposure to "a world and peoples beyond their experience" is increased innovativeness (Powdermaker, 1962). If a teacher works in a school system where other teachers are exposed to the mass media, this system effect will be a stimulus to his exposure and his innovativeness.

TH₁₅: School mass media exposure has a system effect on teacher innovativeness, when the effects of individual teacher mass media exposure are removed from the system effect.

9.. Teacher Cosmopoliteness: In U.S. studies, Ryan and Gross (1943) found that hybrid seed corn innovators traveled more often to Des Moines than did later adopters of the new product. Menzel and Katz (1955) found that innovative medical doctors made more trips to out-of-town professional meetings than did non-innovators. Goldsen and Ralis (1957) found that Thailand farm innovators were more likely to visit Bangkok than later adopters. Of 73 studies in the Diffusion Documents Center at Michigan State University which deal with the relationship between cosmopoliteness and innovativeness, nearly 81 percent report a positive relationship (Rogers and Stanfield, 1966, p. 26). It is expected that Thai teachers' interaction with the larger society will create an awareness of new ideas and break down the individual isolation of a traditional system.

TH₁₆: School cosmopolitaness has a system effect on teacher innovativeness, when the effects of individual teacher cosmopolitaness are removed from the system effect.

CHAPTER III

RESEARCH METHODOLOGY

The purpose of the present chapter is to give the historical background of the Thailand Diffusion Project, to discuss the construction of the survey instrument, to operationalize the independent and dependent variables included in the research, and finally to describe the data analysis techniques.

Background of the Thailand Diffusion Project

As indicated in Chapter II, the present study is based on an analysis of a portion of the data gathered in the Thailand Educational Diffusion Project conducted by the Institute for International Studies in Education, and the Department of Communication, Michigan State University, and jointly sponsored by the United States Agency for International Development and the Inter-University Research Program in Institution Building of the University of Pittsburgh.

The research project was initiated in 1964, under the guidance of the Research Advisory Committee of the Thailand Educational Planning Project at Michigan State University, a group which was part of an educational advisory project in Thailand, conducted by the M.S.U. Institute for International Studies in Education.

The study was designed to provide information on the problems associated with the introduction of educational innovations into the government

51

01

Da

St

t

W

O

i

R

t

h

s

i

T

n

t

at

R

P

P

sponsored secondary schools of Thailand for (1) Thai Ministry of Education officials, (2) foreign educational advisors, (3) the U.S. Agency for International Development, and (4) the M.S.U. Advisory Group composed of professors at Michigan State University serving as consultants to the Thai Ministry of Education.

The general objective of the Thailand Educational Diffusion Project^{*} was to determine how educational innovations are diffused to, and adopted or rejected by, personnel in Thai government secondary schools. Specifically, the research was designed:

1. To determine how decisions about the use of new educational ideas are made by a bureaucratic educational organization, like the Thai Ministry of Education.
2. To determine the individual characteristics of organizational members as correlated with knowledge of innovations, favorable attitudes toward innovations (perceived beneficiality), and innovativeness.
3. To determine how educational innovations spread to teachers through the hierarchical structure of the Thai Ministry of Education.

In September, 1965, a grant was received from the Inter-University Research Program in Institution Building, and a research staff was selected to design the Project. The first step was a pilot study in three Michigan high schools during 1965 and 1966. Schedule modification, i.e., flexible scheduling of class size, of length of class, and of the number and spacing of classes, was the educational innovation studied in the pilot project. The four dependent variables measured in the pilot study were time of awareness of innovation, time of adoption of innovation, innovation internalization, and self-perceived change orientation. The unit of response and analysis was the individual teacher. A large number of demographic,

^{*}For additional details of the research methodology used in the Thailand Project, see Rogers and others (1969) and Mortimore (1968).

per

cor

des

dat

tiv

bec

uni

wer

dec

625

wer

scs

Tha

wer

hyp

and

den

per

squ

con

Var

Var

Cial

perceptual, personality, and institutional variables were selected for correlation with the four dependent variables.

The preliminary investigation in Michigan contributed to the research design by making it possible to pretest instruments and by suggesting data-analysis techniques. The pilot study showed that individual innovativeness was not a meaningful concept for authority innovation-decisions, because teachers were the implementing rather than the decision-making unit. To overcome this problem in the Thailand study, ten innovations were selected, representing both individual-choice and authority adoption decisions.

The second phase of the Project involved the collection of data from 629 teachers in Thai academic secondary schools. The instruments used were self-administered, pre-coded survey questionnaires which contained scales drawn from the Michigan study, as modified by a pretest with 61 Thai teachers employed in two government secondary schools in Bangkok who were not included in the final sample.

In this second phase of research, an attempt was made to test 150 hypotheses predicting directional relationships between 50 independent and three dependent variables (Mortimore, 1968, p. 116). The three dependent variables measured were time of awareness, time of adoption, and perceived beneficiality of the ten innovations.

When significant zero-order correlations were submitted to a least-square multiple regression analysis, it was found that four variables contributed 12.4 percent of the total variance in awareness, that three variables contributed 6.35 percent of the variance in adoption, and six variables contributed 11.18 percent of the variance in perceived beneficiality of the innovations studied.

Directors of the Project suggested that the low correlations, which generally had been higher in U.S. studies, might be partly explained by the fact that the research did not implicitly consider "system effects on teachers' behavior regarding innovation" (Rogers and others, 1969, p. 175).

The present study, which represents Phase Three of the Thailand Project, is an attempt to increase the amount of variance explained in the dependent variables by incorporating social structural variables in the analysis. In the present study, the unit of analysis is both the individual teacher and the school.

The research reported here conceptualizes a teacher's innovative behavior as explained by two types of variables: (1) the individual's personality characteristics; his communication behavior; and his attitudes; and (2) the make-up and norms of his school, the social structure within which he reacts. The first class of variables are individual, while the second are social structural. Both will be used to predict dependent variables at the individual level. Also, individual variables will be aggregated and standardized to predict dependent variables at the system level.

Sampling Procedures

The original sample of 38 academic secondary schools of Thailand was selected on a random, stratified, and proportional basis, using the five geographic regions of Thailand and proportionate samples of schools within each of those regions. The unit of random selection was the school; all teachers and the principal present in the schools at the time of the survey were administered questionnaires. To obtain a stratified and proportional

sample of teachers used in Phase Two, a random selection of schools was made within each of the five geographic regions, but only to that point where the number of teachers in sample schools reflected the proportion of teachers employed by all government secondary schools of that region.

The 38 schools of the sample, which represented 8.6 percent of all such schools in Thailand, employed 732 teachers or 8.3 percent of all teachers in government sponsored secondary schools. According to government figures, the 38 sample schools enrolled 8.5 percent of the total students of all schools. Because of the absence of some teachers during the time questionnaires were administered, only 629 teachers completed usable instruments, a response rate of 85.93 percent of the total sample.

For purposes of the present study, the random sample of 38 schools was reduced to 28, by deleting from the sample those schools in which eight or fewer teachers responded to the questionnaire. This deletion was made to eliminate from the sample those schools in which variance would be restricted by the very small teaching faculty, and because of the consequent homogeneity of variance on individual and dependent variables which would be present. The extent to which sample schools are representative of the universe of Thai academic secondary schools, in terms of geographic location, number of teachers employed, and enrollment, may be determined from Table 1-III.

By reducing the sample from 38 to 28 schools with nine or more respondents each, the total sample of teachers is reduced from 629 to 585, or a net loss of 42 teachers (an average of 4.2 teachers per school dropped). While this reduces the sample of schools by 26 percent, it decreases the total number of respondents by less than 7 percent. However, the smaller n of 28 schools severely restricts the measurable variance of the sample.

TABLE 1-III

TOTAL AND REGIONAL FIGURES FOR SAMPLE SCHOOLS

Total Figures for Sample Schools for Geographic Areas

Geographic Area	Number of Schools	Percent of Sample	Number of Teachers	Percent of Sample
Bangkok-Thonburi	5	17.86	201	34.36
Central Thailand	11	39.29	156	26.67
Northeastern Thailand	5	17.86	79	13.50
Northern Thailand	4	14.29	76	12.99
Southern Thailand	<u>3</u>	<u>10.71</u>	<u>73</u>	<u>12.48</u>
Totals	28	100.00%	585	100.00%

Total Figures for Sample Schools for Educational Regions

Educational Region	Number of Schools	Percent of Sample	Number of Teachers	Percent of Sample
Bangkok-Thonburi	5	17.86	201	34.36
Central Thailand				
Region I	1		12	
Region V	2		40	
Region VI	4		51	
Region XII	<u>4</u>		<u>53</u>	
Totals	11	39.29	156	26.67
Northeastern Thailand				
Region IX	1		10	
Region X	3		60	
Region XI	<u>1</u>		<u>9</u>	
Totals	5	17.86	79	13.50
Northern Thailand				
Region VII	1		34	
Region VIII	<u>3</u>		<u>42</u>	
Totals	4	14.29	76	12.99
Southern Thailand				
Region II	0		0	
Region III	2		51	
Region IV	<u>1</u>		<u>22</u>	
Totals	3	10.71	73	12.48

Instrument Construction

Because a secondary purpose of the Thailand research was to test the cross-cultural validity of hypotheses generated by diffusion studies in the United States, many scale items and direct questions were similar to those which have been employed in previous U.S. research. The midpoint, or indeterminate response of "don't know" or "unsure," was eliminated from some scale response categories because previous experience in Thailand indicated that on forced-choice items, respondents frequently elected indefinite or neutral responses where the option was offered. However, the "I don't know" response was used in those scale items where logic dictated.

The Project directors also decided to use closed-ended response categories wherever possible because of the lack of trained coders in Thailand and because of the desire to reduce respondent time in completing an instrument of 58 pages and 214 items. The entire instrument appears in the Appendix.

Instruments were translated into the national language by two professional translators of the U.S.-AID office in Bangkok and an official of the Thai Educational Planning Office. Each of the translators worked independently, translating questionnaire items from English into the Thai language. All three translations were then submitted to the Thai Director of the Educational Planning Office for review. He acted as arbitrator in choosing the Thai interpretation in those instances where the three translations did not agree.

Interview schedules were translated into the Thai language and then pretested on 61 teachers in two government academic secondary schools in Bangkok who were not in the study sample.

Based upon an analysis of the Michigan Pilot Study, the Bangkok pretest, and the final sample data, 20 scales and scale items were used in the correlational analysis in Phase Two.* The following scale items relevant to the present study were selected for inclusion in Phase Three research.

Independent Variables

1. Mass Media Exposure Scale: Thai principals, teachers, and changwad education officers were asked if they had read a newspaper, listened to a radio, watched television, read from a book, or read a magazine within the past seven days.** Exposure scores for the five different mass media were summed to provide an index of mass media exposure for each respondent.

2. Perceived Participation in School Decision-Making: Two items, based upon Fleishman's scale (1955), were used in various forms to measure (a) the teacher's perception of other teachers' participation with the principal in school decision-making, and (b) the principal's perception of his participation in decision-making with the changwad education officer who supervised the school. Typical items in the scale include:

The principal of this school usually doesn't explain his decisions to the other teachers even when these decisions affect them.

The principal of this school frequently makes decisions which affect the other teachers without consulting them first.

Response categories on a six-point scale ranged from "I agree very much" to "I disagree very much."

*

For a complete listing of all scale items used in the study, see Rogers and others (1969).

**

When this same question is used in U.S. research, mass media exposure is based upon an individual's exposure in the preceding 24 hours, because of the greater abundance of mass media and the opportunity for more frequent exposure.

3. Perceived Psychological Distance Between Teachers and Principal:

Items in the Perceived Psychological Distance scale were taken from Fleishman's Scale (1955) as revised in the Michigan pilot study. The sum of the items was used as an index of the psychological distance between the teachers and their principal. Similar items were used to measure the principal's perceptions of the psychological distance he maintained from his teaching faculty. Some typical items include:

The Principal of this school is usually very kind and understanding when he talks to the other teachers.

The Principal of this school is usually very friendly and the other teachers can discuss their problems with him.

The Principal of this school associates with the other teachers even when there is no official business involved.

Again, response categories ranged across a six point scale from "agree very much" to "disagree very much."

4. Performance Feedback from Principal to Teacher: Two items from the Michigan pilot study were reworded and response categories reduced from five to four. Items were used to measure the teacher's perceptions of performance feedback from the principal to other teachers in his school and the principal's perceptions of performance feedback to his teachers. Typical items in the scale include:

The Principal of this school gives the other teachers encouragement in their work.

I try to give my teachers suggestions to help them to improve their teaching performance.

5. Teacher Role Satisfaction: Two of four items used in the Michigan Pilot Study were included on the Thai questionnaire. The two items of the teachers' self-perceived role satisfaction are:

Generally speaking, I don't like being a teacher.

I like my teaching job in this school.

6. Opinion Leadership: In the teacher questionnaire, one scale item was used to measure opinion leadership. The question asked teachers to "list the names of the three teachers in this school from whom you most frequently ask advice when you have problems related to teaching."

7. Opinion Leadership Concentration: This measure was computed from the nominations received by teachers who were named as those from whom advice was most frequently sought on problems related to teaching.

8. Cosmopoliteness: Because of the limited opportunities for travel of Thai teachers, the project staff decided to measure the cosmopoliteness dimension by measuring the respondents' knowledge of other countries, as one possible index of their external orientation outside their own culture. Accordingly, teacher respondents were asked to identify Rhodesia, U Thant, and the Prime Minister of India.

9. Communication Integration: This measure was computed based upon the level of interrelatedness of sociometric interactions of teachers who were sought for advice on problems related to teaching. The communication Integration Index was constructed through matrix multiplication by computer.

Table 2-III indicates the independent and dependent variables measured and the predicted direction of relationship.

Dependent Variables

1. Time of Awareness of Innovations: Awareness time was measured as respondents' recall of the number of years ago they had first heard about each of the ten innovations. Scores on awareness time of all ten innovations were summed and standardized. Consequently, a high awareness score represents a tendency for that individual to be relatively earlier than others of his social system in becoming aware of new ideas. For teachers, all inter-item correlations were positive, ranging from .10 to .47.

TABLE 2-III

PREDICTED RELATIONSHIPS BETWEEN INDEPENDENT AND DEPENDENT VARIABLES

Hypothesis No.	Independent Variable	Dependent Variable	Predicted Relationship
TH1	Perceived Psychological Distance	School's Attitudinal Acceptance of Innovation	-
TH2	Perceived Psychological Distance	School Innovativeness	-
TH3	Role Satisfaction	School's Attitudinal Acceptance of Innovation	+
TH4	Role Satisfaction	School Innovativeness	+
TH5	Participation in Decision-making	School's Attitudinal Acceptance of Innovation	+
TH6	Participation in Decision-making	School Innovativeness	-
TH7	Role Performance Feedback	School's Attitudinal Acceptance of Innovation	+
TH8	Role Performance Feedback	School Innovativeness	+
TH9	Opinion Leadership	Teacher Innovativeness (Controlled on School Innovativeness)	+
TH ₁₀	Opinion Leadership	Teacher Innovativeness (Controlled on School Innovativeness)	+
TH ₁₁	Opinion Leadership	Teacher Innovativeness (Controlled on School Innovativeness)	+
TH ₁₂	Opinion Leadership Concentration	School's Attitudinal Acceptance of Innovation	+
TH ₁₃	Opinion Leadership Concentration	School Innovativeness	+
TH ₁₄	Communication Integration	School Awareness	+
TH ₁₅	School Mass Media Exposure	Teacher Innovativeness (Individual Effect Removed)	+
TH ₁₆	School Cosmopolitaness	Teacher Innovativeness (Individual Effect Removed)	+

2. School's Attitudinal Acceptance of Innovation: Teachers' attitudinal acceptance of all ten innovations was aggregated and standardized and a school acceptance score determined based upon the mean scores of teachers within that school.

3. School Innovativeness: The index which was used to measure school innovativeness was the principal's report of the times of school adoption of eight collective innovations (including school adoption of libraries). In each instance, the principal was asked about how many years ago his school first used each of the eight innovations. The time of school adoption of the innovations was summed and standardized to provide a general measure of school adoption of all eight innovations. The earlier each school was in adoption of the innovations, in relation to the other schools in the sample, the more innovative that particular school was under the definition specified in Chapter I.

4. Teacher Innovativeness: Since early adoption serves as a valid index of teacher innovativeness only for those three innovations which the individual teacher could decide to adopt or reject (objective tests, library assignments, and discussion techniques), times of adoption were summed for the three individual choice innovations and a mean determined as a general measure of teacher innovativeness.

A high score on the innovativeness index reflects teacher innovativeness. However, since some of the respondents entered the teaching profession five years or less before the survey, they did not have a fair and equal chance to be among the innovative teachers unless all teachers' scores were standardized on the basis of number of years taught in that particular school. Accordingly, the teachers' scores were adjusted for the length of their teaching experience.

Deriving Concentration Ratios

The Opinion Leadership Concentration Ratio and the Communication Integration Ratio were both determined by data from questions which asked teachers to list the names of three teachers in the school from whom they most frequently asked advice when they had problems related to teaching. The advantages of such a sociogram is that it maps relationships among individuals in the social system (school) under study. However, a sociogram is limited in utility to descriptive statements and visual observations.

Theoretic hypotheses 12 and 13 of the present study predict a positive relationship between the opinion leadership concentration of a social system and the attitudinal acceptance of innovations and the innovativeness of that social system. To test the predicted relationships, a Gini ratio was used to determine opinion leadership concentration of a particular school (See Figure 1-III).

Opinion leadership concentration is measured by plotting the cumulative percentage distribution of sociometric choices against the cumulative percentage distribution of individuals in the social system. A Lorenz Curve is plotted by rank-ordering all individuals of the social system according to the percentage of sociometric choices that each individual receives.

In Figure 1-III, the cumulative percentage distribution of sociometric choices received is plotted along the ordinate, and the cumulative percentage distribution of individuals is shown on the abscissa. Both axes of the Lorenz Curve are expressed in terms of cumulative percentage distributions ranging from 0 to 100. The straight line rising from the origin in Figure 1-III indicates the line of perfect equality of distribution

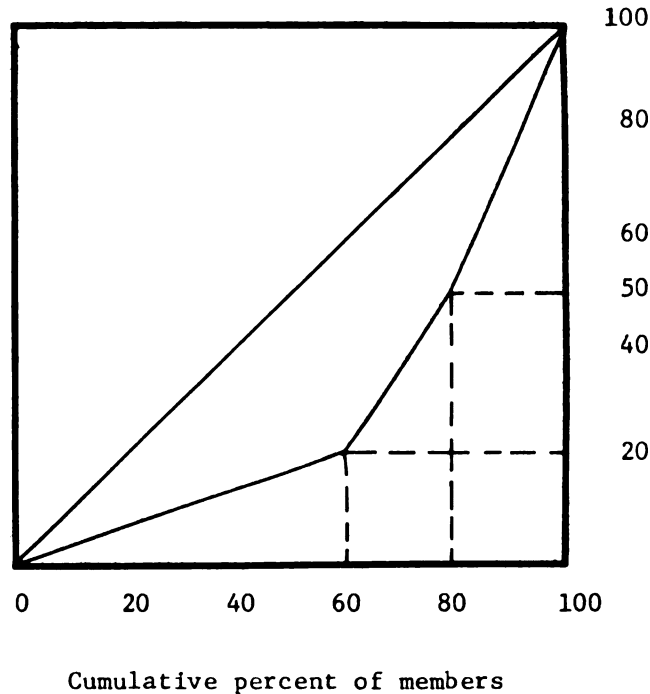
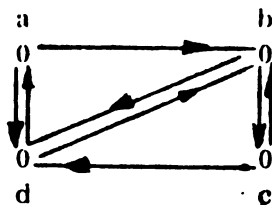


FIGURE 1-III: An Illustration of the Lorenz Curve Indicating Concentration of Sociometric Opinion Leadership

of sociometric choices among all members of the social system. The area between the Lorenz Curve and the line of perfect equality represents the degree of opinion leadership concentration (Gini ratio) in a social system. The ratio of the area between the Lorenz Curve and the line of perfect equality, to the total area of the triangle formed by the two axes and the line of perfect equality, is the Gini ratio of concentration. The Gini ratio indicates for each individual of the population the difference between where he actually is on the Lorenz Curve and where he would be expected to be in the case of equal distribution of sociometric choices among all members of the social system. The more the Lorenz Curve deviates from the line of equality, the greater is the opinion leadership concentration (Guimarães, 1970).

The communication integration index of theoretic hypothesis 14, also utilizes the matrix multiplication approach to identify formally-defined structures within a communication network, including direct and indirect relationships. According to Guimarães (1970), matrix multiplication, a computer program, consists of raising the original binary (0-1) matrix to n-powers to determine n-chains of communication among network members.

As illustrated by Guimarães (1970, p. 44), consider a hypothetical network of four persons (a, b, c and d), whose relationships can be plotted both in a sociogram and in a binary matrix, as shown in Figure 2-III. If the assumption is made that the sociogram and its corresponding binary matrix A represent the communication patterns in the network, it is possible to see in matrix A who communicates with whom by reading across the rows (a communicates with b and d in row 1). By visual inspection, it becomes evident that direct, one-step connections exist among network members.



A:

	a	b	c	d
a	0	1	0	1
b	0	0	1	1
c	0	1	0	1
d	1	1	0	0

A^2 :

	a	b	c	d
a	1	1	1	1
b	1	2	0	1
c	1	1	1	1
d	0	1	1	2

FIGURE 2-III: Illustration of a Communication Network as Represented by a Sociogram, a Binary Matrix (A) and its Corresponding Squared Matrix (A^2)

The squared matrix A^2 shows indirect, two-step connections among network members. For example, the squared matrix A^2 indicates that cell "ac" has a value of 1, while in the original binary matrix A, this cell has a value of 0. This means that "a" communicates with another person who communicates with "c." By cubing matrix A and then reversing the matrix, Guimarães (1970) arrives at a value which is the communication integration index of a network of individuals. The higher the index, the more individuals interact and the more integrated is the social system.

Methods of Determining System Effects

More than half a century ago, Durkheim (1897) focused scientific attention upon the study of system effects by demonstrating a method of isolating and measuring such effects. Durkheim (1897, pp. 37-38) observed:

On the pretext of giving the science [sociological method] a more solid foundation by establishing it upon the psychological constitution of the individual, it is thus robbed of the only object proper to it. It is not realized that there can be no sociology unless societies exist, and that societies cannot exist if there are only individuals.

The Durkheimian method of isolating system effects is to ascertain the relationship between the distribution of a given independent variable in a social system and a dependent variable of that same social system, while holding the independent variable constant for individuals of the social system. If a system effect is found, it provides evidence that differences in the system variable are responsible for the variation in the dependent variable, since individual differences on the independent variable are controlled and are not allowed to vary.

Another social scientist (Blau, 1957 and 1960), who also urged the simultaneous consideration of individual and system effects, characterized individuals in terms of their individual scores on variable Z, and their systemic score on variable Zgp. The strategy used included three steps:

1. An empirical measure Z is obtained on some individual characteristic of members of a social system.
2. Individual scores on Z are combined, or aggregated, into one index, Zgp, for each social system.
3. A relationship is determined between the system attribute, Zgp, and some dependent variable, W, while holding the individual variable Z constant. Thus, the effect of Zgp on W is a system effect, with the effect of the individual level of the independent variable, Z, removed.

Analyzing Data to Test Hypotheses

Statistical methods utilized in the analysis of data in the present study include:

1. Zero-order correlation
2. Multiple correlation
3. Clique analysis to determine opinion leadership concentration
4. Network analysis to determine communication integration

First, zero-order Pearson Product moment correlations were computed between the four dependent variables and the eleven independent variables with the school as the unit of analysis. With a sample n of 28, correlation coefficients are significant at the 5 percent confidence level when their values reach $\pm .37$. In all cases, if the value of r reaches

[†].37, it can be concluded with a fairly high degree of confidence that the correlation coefficient is significantly different from zero and therefore represents a real, non-chance, relationship between the independent and the dependent variable.

To test for the significance of system effects upon the behavior of Thai teachers, a matrix of high and low innovative schools was constructed using a median split on school innovativeness to distribute teachers into high and low innovative schools. Zero-order Pearsonian correlations were computed between the independent variable (opinion leadership) and the dependent variables (teacher cosmopolitaness, mass media exposure, and innovativeness) for both high and low innovative schools. To test for the significance of social system effects, the two zero-order Pearsonian correlations were compared to determine if the obtained r 's were significantly different from each other at the 5 percent confidence level. To determine the significance of the difference between two r 's, both are transformed into z 's and the standard error of the difference between the two z 's is determined; if the z 's are significantly different, the two r 's are significantly different, indicating the presence of system effects (McNemar, 1962, p. 139).

To test for the system effect of the school's mass media exposure and cosmopolitaness upon the behavior of individual teachers within each school, multiple correlations were computed among school mass media exposure, teacher mass media exposure, and teacher innovativeness and among school cosmopolitaness, teacher cosmopolitaness, and teacher innovativeness for each of 585 teachers in the sample schools. The two multiple correlations were then compared with zero-order Pearsonian correlations between teacher innovativeness and both teacher mass media exposure and teacher cosmopolitaness, to determine if the multiple correlations were

significantly different from the zero-order correlations, indicating the presence of a system effect. Again, both r 's were transformed into z 's and the standard error of the difference between the two z 's was determined. If the two z 's are significantly different from each other, then the two correlations are significantly different at the 5 percent confidence level. The difference between the multiple correlation and the zero-order correlation, if significant, indicates the presence of system effects upon teacher innovativeness.

CHAPTER IV

FINDINGS

As stated earlier, four dependent variables selected for inclusion in the present data analysis are (1) time of school awareness, (2) attitudinal acceptance of innovation by the school, (3) school innovativeness, and (4) teacher innovativeness. To determine time of school awareness, the number of years ago that the teachers of each school had first heard of an innovation was summed across the ten innovations and a mean score was derived. The mean of the aggregate respondents' scores becomes time of school awareness. The attitudinal acceptance of innovation by the school was determined on the basis of teachers' responses of "generally favorable" or "generally unfavorable" toward each of the ten innovations. Again, responses were summed and a mean score derived for each school; this mean score becomes the measure of school attitudinal acceptance of innovation.

School innovativeness was determined on the basis of the time of the first school use of eight non-teacher choice innovations, such as coeducation, school departmentalization, Peace Corps volunteers. A school's innovativeness score is the mean of the total aggregate score on time of adoption of each innovation. Teacher innovativeness serves as an index of teacher adoption of three individual choice innovations (objective tests, library assignments, and discussion techniques). Times of adoption were summed and a mean determined as the general measure of teacher innovativeness.

Theoretic Hypothesis One

The first theoretic hypotheses tested in this study predicts a directional relationship between some attribute of the individual teacher and the school in which that teacher is employed. In each such instance, the school is the unit of analysis, although the unit of response is the individual teacher or principal.

The first theoretic hypothesis predicts a negative relationship between perceived psychological distance between teachers and principal and the school's attitudinal acceptance of innovation and school innovativeness. The hypothesis says that teachers who perceive themselves to be psychologically close to the principal are more likely to assume the values of the principal, which in the case of Ministry of Education supported innovations, is likely to be favorable toward the innovations.

EH_{1a}: Perceived psychological distance between teachers and principal is negatively related to the school's attitudinal acceptance of innovations.

Table 1-IV reports the zero-order Pearsonian product-moment correlation coefficients obtained from the analysis of the data. As indicated, the zero-order correlation between principals' and teachers' perceived psychological distance from each other and the school's attitudinal acceptance of innovations is $-.17$. Using the school as the unit of analysis, the n is 28. Correlation coefficients are significant at the 5 percent confidence level when their values reach $\pm .37$ with an n of 28.

The correlation between perceived psychological distance between teachers and principal and school's attitudinal acceptance of innovations is negative, as predicted in empirical hypothesis 1a, but it is not significantly different from zero. Thus, EH_{1a} is not supported.

TABLE 1-IV

CORRELATION BETWEEN INDEPENDENT AND DEPENDENT
VARIABLES OF EMPIRICAL HYPOTHESES

Empirical Hypothesis No.	Independent Variable	Dependent Variable	Statistical Result	Conclusion
EH _{1a}	Perceived Psychological Distance	School's Attitudinal Acceptance of Innovation	-.17	Not Supported
EH _{1b}	Perceived Psychological Distance	School's Attitudinal Acceptance of Innovation	-.46	Supported
EH _{2a}	Perceived Psychological Distance	School Innovativeness	.005	Not Supported
EH _{2b}	Perceived Psychological Distance	School Innovativeness	.10	Not Supported
EH _{3a}	Role Satisfaction	School's Attitudinal Acceptance of Innovation	.07	Not Supported
EH _{3b}	Role Satisfaction	School's Attitudinal Acceptance of Innovation	.14	Not Supported
EH _{4a}	Role Satisfaction	School Innovativeness	-.03	Not Supported
EH _{4b}	Role Satisfaction	School Innovativeness	.37	Supported
EH _{5a}	Participation in Decision-making	School's Attitudinal Acceptance of Innovation	.02	Not Supported
EH _{5b}	Participation in Decision-making	School's Attitudinal Acceptance of Innovation	.14	Not Supported
EH _{6a}	Participation in Decision-making	School Innovativeness	-.005	Not Supported

TABLE 1-IV (cont'd.)

Empirical Hypothesis No.	Independent Variable	Dependent Variable	Statistical Result	Conclusion
EH _{6b}	Participation in Decision-making	School Innovativeness	-.07	Not Supported
EH _{7a}	Role Performance Feedback	School's Attitudinal Acceptance of Innovation	.37	Supported
EH _{7b}	Role Performance Feedback	School's Attitudinal Acceptance of Innovation	.20	Not Supported
EH _{8a}	Role Performance Feedback	School Innovativeness	.37	Supported
EH _{8b}	Role Performance Feedback	School Innovativeness	.11	Not Supported
EH _{9a}	Opinion Leadership	Teacher Innovativeness (Controlled on School Innovativeness)	.01, .09	Not Supported
EH _{10a}	Opinion Leadership	Teacher Innovativeness (Controlled on School Innovativeness)	.24, .13	Not Supported
EH _{11a}	Opinion Leadership	Teacher Innovativeness (Controlled on School Innovativeness)	.07, .06	Not Supported
EH _{12a}	Opinion Leadership Concentration	School's Attitudinal Acceptance of Innovation	.26	Not Supported
EH _{13a}	Opinion Leadership Concentration	School Innovativeness	.26	Not Supported
EH _{14a}	Communication Integration	School Awareness	-.15	Not Supported

TABLE 1-IV (cont'd.)

Empirical Hypothesis No.	Independent Variable	Dependent Variable	Statistical Result	Conclusion
EH _{15a}	School Mass Media Exposure	Teacher Innovativeness (Individual Effect Removed)	.14, .14	Not Supported
EH _{16a}	School Cosmopoliteness	Teacher Innovativeness (Individual Effect Removed)	.02, -.02	Not Supported

EH_{1b} : Perceived psychological distance between principal and his teaching faculty is negatively related to the school's attitudinal acceptance of innovation.

The perception of psychological distance between principal and the members of his teaching staff is correlated -.46 with the school's attitudinal acceptance of innovation, which is in the predicted direction and significantly different from zero at the 5 percent confidence level. Therefore, EH_{1b} is supported.

Empirical hypothesis 1a is not supported at the .05 level, but EH_{1b} is supported. Under the decision rule to be utilized in this study (a theoretic hypothesis is supported if one of two empirical hypotheses is supported), theoretic hypothesis number one is supported.

Theoretic Hypothesis Two

Theoretic hypothesis number two predicts that perceived psychological distance between the teachers and the principal is negatively related to school innovativeness. It is expected that a close relationship with a school principal who is attempting to implement Ministry of Education directives to adopt certain innovations is likely to result in more innovative teachers and thus a more innovative school.

EH_{2a} : Perceived psychological distance between teachers and principal is negatively related to school innovativeness.

The correlation between perceived psychological distance between teachers and principal and the dependent variable school innovativeness is .005, less than the predicted level of significance and not in the predicted direction. The correlation tends to indicate there is no relationship between the psychological distance between the principal and his faculty and the innovativeness of the school.

The correlation between the school principal's perceptions of the psychological distance between himself and his teachers is .10. Again, the relationship is in the wrong direction and it does not reach significance at the .05 level. Empirical hypothesis 2b is not supported. Therefore, theoretic hypothesis number two is not supported.

Theoretic Hypothesis Three

The third theoretic hypothesis predicts that a high level of role satisfaction leads to high morale, job security, and less distrust of change which threatens those individuals who have low job satisfaction.

EH_{3a} : Teachers' role satisfaction is positively related to the school's attitudinal acceptance of innovation.

The correlation between teachers' role satisfaction and the school's attitudinal acceptance of innovation is +.07. The predicted relationship is not supported by the analysis, for while the value obtained is positive, as predicted, the value did not reach the magnitude (+.37) at which it would be significant at the 5 percent level of confidence.

EH_{3b} : Principal's role satisfaction is positively related to the school's attitudinal acceptance of innovations.

This correlation is +.14, which again is in the predicted direction, but is not significant at the .05 level. Therefore neither EH_{3a} or EH_{3b} is supported and theoretic hypothesis number three is not supported.

Theoretic Hypothesis Four

This hypothesis says, in essence, that teachers' role satisfaction will be positively related to the innovativeness of the school in which they work.

EH_{4a} : Teachers' role satisfaction is positively related to school innovativeness.

As shown in Table 1-IV, the correlation between teachers' role satisfaction and school innovativeness is $-.03$, much below the predicted level of $+.37$. Thus, empirical hypothesis 4a is not supported.

EH_{4b} : Principal's role satisfaction is positively related to school innovativeness.

The correlation between the principal's role satisfaction and the innovativeness of the school in which he is employed is $+.37$ which is significant at the $.05$ level of confidence. Therefore, empirical hypothesis 4b is supported.

Empirical hypothesis 4a is not supported; the correlation between teachers' role satisfaction and the school's innovativeness is not significantly different from zero. However, empirical hypothesis 4b is supported; therefore, the theoretic hypothesis of a positive relationship between teachers' and principals' role satisfaction and school innovativeness is supported because one of the two theoretic hypotheses was supported.

Theoretic Hypothesis Five

The fifth theoretic hypothesis predicts a positive relationship between teachers' and principals' participation in decision-making and the school's attitudinal acceptance of innovation, because it is expected that individuals' participation in decision-making to adopt change increases their satisfaction with that change.

EH_{5a} : Teachers' participation in decision-making is positively related to the school's attitudinal acceptance of innovation.

The correlation of $+0.02$ does not support the predicted relationship and it is concluded that the correlation is not significantly different from zero. Empirical hypothesis 5a is not supported.

EH_{5b}: Principal's participation in decision-making with the changwad education officer supervising his school is positively related to the school's attitudinal acceptance of innovation.

This empirical hypothesis predicts that the principal's attitude toward proposed change in his school will be more favorable if he is consulted by the changwad education officer before the change is imposed. If the principal is more favorable to the change, his influence should help persuade the teachers to be more favorable toward the change.

The correlation shown in Table 1-IV, between the principal's participation in decision-making and the school's attitudinal acceptance of innovation is $+0.14$, which is in the predicted direction, but not significant at the 5 percent level of confidence.

Neither of the empirical hypotheses is supported, and therefore, theoretic hypothesis five of the relationship between teachers' and principals' participation in decision-making and the school's attitudinal acceptance of innovation is not supported.

Theoretic Hypothesis Six*

Theoretic hypothesis six predicts a negative relationship between teachers' and principals' participation in decision-making to bring about change and school innovativeness, because authority decisions made by one person without consultation with employees, can be accomplished more quickly than consensus decisions in which all must agree.

*The logical contradiction which seems to be raised by theoretic hypotheses five and six is explained in the footnote on page 39.

EH_{6a}: Teachers' participation in decision-making is negatively related to the school's innovativeness.

The correlation between the two variables is $-.005$, which is in the predicted direction, but is not significantly different from zero. Therefore, empirical hypothesis 6a is not supported.

EH_{6b}: The principal's participation in decision-making with the changwad education officer supervising his school is negatively related to school innovativeness.

The correlation of the principal's participation in decision-making and school innovativeness is $-.07$ which is in the predicted direction, but is not significantly different from zero. Therefore, empirical hypothesis 6b is not supported.

Empirical hypotheses 6a and 6b are not supported and therefore theoretic hypothesis six is not supported.

Theoretic Hypothesis Seven

The seventh theoretic hypothesis predicts that frequent performance feedback from superior to employees is positively related to the school's attitudinal acceptance of innovation.

EH_{7a}: Frequency of role performance feedback from principal to teachers is positively related to the school's attitudinal acceptance of innovation.

The correlation between the two variables is $+.37$, which is significantly different from zero in the direction predicted. Therefore, the conclusion is that empirical hypothesis 7a is supported.

EH_{7b}: Principal's perceived frequency of performance feedback from self to faculty is positively related to the school's attitudinal acceptance of innovation.

The correlation between the two variables is +.20, which is in the predicted direction, but is not significantly different from zero. Empirical hypothesis 7b is not supported.

Theoretic hypothesis seven is supported; both empirical hypotheses were in the direction predicted and one of the two empirical hypotheses was supported.

Theoretic Hypothesis Eight

This theoretic hypothesis eight predicts that the frequency of role performance feedback from superiors to employees is positively related to school innovativeness.

EH_{8a} : Frequency of role performance feedback from principal to teachers is positively related to school innovativeness.

The correlation between the two variables, frequency of role performance feedback from principal to teachers and school innovativeness is +.37 which is in the direction predicted and significantly different from zero at the .05 level of confidence. Empirical hypothesis 8a is supported.

EH_{8b} : Principal's perceived frequency of role performance feedback from self to teachers is positively related to school innovativeness.

In this instance the correlation of the two variables is +.11, which is in the predicted direction, but is not significantly different from zero at .05 level of confidence. Empirical hypothesis 8b is not supported.

Based upon the support for empirical hypothesis 8a and the fact that both of the correlations are positive as predicted, theoretic hypothesis eight is supported.

The following three hypotheses predict a system effect upon the behavior of individuals within a particular social system. All three

h

so

o

u

t

t

h

o

c

w

e

p

t

r

t

c

a

o

e

t

c

t

a

t

hypotheses are predicated upon a testable assumption that the norms, social statuses, hierarchy, etc. of a social system can act as barrier or facilitator of change. To test this assumption, a median split was made of teachers in high and low innovative schools on the basis of time of adoption of three individual choice innovations: objective tests, class discussion techniques, and use of library for class assignments.

Using teachers as the unit of analysis, a correlation matrix was computed for separate high and low innovative schools on four teacher variables: (1) cosmopolitaness, (2) innovativeness, (3) mass media exposure, and (4) opinion leadership. Opinion leadership is the independent variable in each hypothesis. To determine opinion leaders in the high and low innovative schools, choices received by each teacher respondent to question 29 of the survey instrument were computed by the clique program. Question 29 asked respondents to list the names of the three teachers in the school from whom they most frequently asked advice when they had problems related to teaching.

To test for the presence of system effects upon the behavior of opinion leaders in the high and low innovative schools, it was necessary to test the significance of the difference between two zero-order correlations, between the independent and dependent variable in both the high innovative and low innovative schools. If the correlations are significantly different from each other, then it is possible to say that the social system had some effect upon the individuals.

Theoretic Hypothesis Nine

Theoretic hypothesis nine says, in effect, that opinion leaders will be more innovative in innovative school systems because the opinion leaders tend to reflect the social system norms in their desire to earn and maintain their influence. Opinion leaders maintain their status by their technical competence, social accessibility, and conformity to the norms of the social system.

EH_{9a} : Teacher opinion leaders are more innovative in high innovative than in low innovative schools.

The correlation between opinion leadership and teacher innovativeness in low innovative schools is $+0.01$, while the correlation between opinion leadership and teacher innovativeness in high innovative schools is $+0.09$. To determine the significance of the difference between the two correlations, both r 's are transformed into z 's and the standard error of the difference between the two z 's is calculated. If the two z 's are significantly different from each other, the conclusion can be made that the two r 's are significantly different.

In the empirical hypothesis 9a cited above, the difference between the two z 's is $.08$, and the standard error of the difference is 1.0 , which is less than 1.64 , the value necessary to reach significance in the t distribution with a one tailed test and an n greater than 120 . Therefore, the conclusion is that empirical hypothesis 9a is not supported, and the theoretic hypothesis is not supported.

Theoretic Hypothesis Ten

This theoretic hypothesis predicts that opinion leaders are more cosmopolite in innovative schools than in non-innovative schools because of the openness of the social system in the innovative schools.

EH_{10a} : Teacher opinion leaders are more cosmopolite in high innovative schools than in low innovative schools.

The zero-order correlation between opinion leadership and cosmopoliteness in low innovative schools is +.24 while the correlation of the same two variables in high innovative schools is +.13. The difference between the two r's is not significant at the .05 confidence level. As a matter of fact, the analysis not only fails to support the hypothesis, but suggests that opinion leaders are more cosmopolite in low innovative schools, based upon the zero-order Pearsonian correlations.

Empirical hypothesis 10a is not supported and theoretic hypothesis ten is not supported at the .05 confidence level.

Theoretic Hypothesis Eleven

Innovative social systems are expected to be more open and have greater contact with the external world of ideas than less innovative systems. Therefore, theoretic hypothesis ten predicts that opinion leaders will be more exposed to the mass media in innovative than in non-innovative schools.

EH_{11a} : Teacher opinion leaders are more exposed to the mass media in high innovative than in low innovative schools.

The zero-order correlation between opinion leadership and mass media exposure in low innovative schools is +.07. The correlation between

opinion leadership and mass media exposure in high innovative schools is +.06. The two r 's are not significantly different at the .05 percent confidence level as predicted.

Empirical hypothesis 11a is not supported and, therefore, theoretic hypothesis eleven is not supported.

Theoretic Hypothesis Twelve

This theoretic hypothesis predicts that opinion leadership concentration is positively related to a school's attitudinal acceptance of innovations because the concentration of leadership in the hands of a few is a powerful instrument for or against change. It is expected that where the opinion leadership is most concentrated, that the principal could have the most influence in persuading these few persons to adopt change. Principals are expected to be pro change, because the innovations are supported by the Ministry of Education, and to adopt the change reflects well upon the principal.

EH_{12a} : Opinion leadership concentration is positively related to the school's attitudinal acceptance of innovation.

The zero-order correlation between opinion leadership concentration and attitudinal acceptance of innovation by the school is -.23, which not only is not significant at the .05 percent confidence level, but is in the reverse direction. The analysis tends to suggest that opinion leadership concentration is inversely related to a school's attitudinal acceptance of innovation: the more diffuse the leadership, the more accepting of innovation is the school. The relationship is not significantly different from zero to permit such a prediction, however.

Empirical hypothesis 12a is not supported and, therefore, theoretic hypothesis twelve is not supported.

Theoretic Hypothesis Thirteen

Theoretic hypothesis thirteen says that there is a positive relationship between opinion leadership concentration in a school and that school's innovativeness because the concentration of opinion leadership places power in a few hands where pro change principals could influence the few to adopt innovation.

EH_{13a} : Opinion leadership concentration is positively related to school innovativeness.

The correlation between the two variables, opinion leadership concentration and school innovativeness, is +.26, which is not significantly different from zero at the .05 level of confidence. Therefore, the empirical hypothesis cannot be supported and the theoretic hypothesis is not supported. The relationship is in the right direction, but it did not reach the predicted magnitude of .37.

Theoretic Hypothesis Fourteen

The fourteenth theoretic hypothesis predicts a positive relationship between communication integration in a school and school awareness of innovations, based upon the notion that in a more integrated system more teachers communicate directly with each other and, therefore, the spread of new ideas through the system will be more rapid than in less integrated social systems.

EH_{14a} : Communication integration is positively related to early school awareness of innovation.

The correlation between the two variables communication integration and school awareness is $-.15$, which is not significant at the $.05$ percent level of confidence. The relationship is not in the predicted direction, which suggests that communication integration somehow acts to impede the creation of awareness of innovations among Thai teachers. However, the relationship is not significant, so such a statement is not valid.

The final two theoretic hypotheses test for system effects upon teacher innovativeness. In each instance, it is predicted that an attribute of the system has an influence upon the behavior of teachers working within that social system. Thus, the teacher is the unit of analysis and the significance of any relationship is tested by determining if there is a significant difference between two r 's, one of which is a multiple correlation and the other a zero-order correlation. If there is a significant difference between the two correlations, then it can be concluded that the effect is attributable to the social system.

Theoretic Hypothesis Fifteen

The fifteenth theoretic hypothesis tested in the present study predicts that the school's mass media exposure has an effect upon teacher innovativeness, when the influence of the teacher's mass media score is removed from the school score. This prediction is based upon an assumption that when most persons of a social system are exposed to the mass media that this exposure is a powerful stimulus upon the individual to expose to the mass media and thus come into contact with new ideas, some of which he will adopt. Mass media exposure creates awareness of new ideas and awareness is expected to lead to adoption.

EH_{15a} : School mass media exposure has a positive relationship with teacher innovativeness, when the effect of the individual's mass media exposure score is removed from the school score.

The multiple correlation among teacher innovativeness, teacher mass media exposure and school mass media exposure is $+0.14$, while the zero-order correlation between teacher mass media exposure and teacher innovativeness is also $+0.14$. This indicates that school mass media exposure contributes nothing to the variance in teacher innovativeness, because the difference between the two correlations is not significant. Therefore, empirical hypothesis 15a is not supported, and theoretic hypothesis fifteen is not supported by the analysis of data.

Theoretic Hypothesis Sixteen

The final theoretic hypothesis, number sixteen, predicts that school cosmopolitaness has a system effect upon the innovativeness of individual teachers working within the school. This prediction is predicated upon the notion that interaction with the external world creates an awareness of new ideas and the urge to adopt.

EH_{16a} : School cosmopolitaness has a positive relationship with teacher innovativeness when the influence of the individual teacher's cosmopolitaness score is removed from the school score.

The multiple correlation among teacher innovativeness, teacher cosmopolitaness, and school cosmopolitaness is 0.02 , while the zero-order correlation between teacher innovativeness and teacher cosmopolitaness is a -0.02 . Since the difference between the multiple correlation and the zero-order correlation is not significant at the 0.05 percent confidence level, the empirical hypothesis is not supported.

Therefore, the theoretic hypothesis is not supported; school cosmopolitaness does not have a system effect upon the behavior of individual teachers as regards their adoption of new ideas.

CHAPTER V

SUMMARY AND CONCLUSIONS

Summary

The study described in this dissertation is based upon an analysis of data from one portion of the comprehensive Thailand Educational Diffusion Project conducted by the Institute for International Studies in Education and the Department of Communication, Michigan State University, and sponsored by the U.S. Agency for International Development and the Inter-University Research Program in Institution-Building.

The Thailand project was designed to investigate the spread of educational innovations and their adoption or rejection by Thai government sponsored secondary schools. The study described in the present dissertation represents the third and final phase of the Thailand project. One of its intended purposes was to attempt to overcome an important shortcoming of the main study (the failure to include system variables in the data-analysis) by going beyond the analysis of individual characteristics and measuring characteristics of the social system in which the individuals work. Hypotheses tested involved two units of analysis: (1) the individual teachers employed in a sample of Thai secondary schools, and (2) the school (or social system). In both instances, the unit of response was the individual teacher or principal of the school. Individual responses were aggregated to provide school-level or social system indices where such indices were necessary.

Most previous studies of the diffusion of innovation have focused attention upon individual decisions by one, or many, respondents to adopt a new idea. In the typical diffusion study, the dependent variable was awareness of the innovation or the innovativeness of the individual respondent. However, this bias for intra-personal variables in diffusion research largely excluded from scientific investigation those social structural or system variables which also are believed to influence the spread of new ideas. Diffusion researchers implicitly assumed that because individuals were the unit of response, that they also had to be the unit of analysis.

A central thesis advanced in the present research is that more variance in individual behavior can be explained by utilizing both individual and social system variables than by using individual variables alone.

A 58 page survey instrument, developed in a pilot test in Michigan and field-tested in Thailand, assessed demographic, institutional, general and professional communication behavior, perceptions of innovations, and psychological and personality characteristics of Thai teachers and principals. The ten innovations selected for inclusion in the investigation included school libraries, parent teacher associations, peace corps volunteers, departmental organization, guidance counseling, class discussion methods, objective tests, audio-visual aids, coeducation, and vocational education. The four dependent variables were school awareness of innovations, the school's attitudinal acceptance of an innovation, teacher innovativeness and school innovativeness. Individual teacher scores were aggregated and a mean determined to arrive at a school score on the three dependent variables which were school measures.

Drawing upon generalizations formulated in diffusion research conducted in the United States, and particularly the Michigan pilot study, 16 theoretic hypotheses were established and tested in the data analysis. The 16 hypotheses predicted directional relationships among the independent variables and the four dependent variables. When zero-order and multiple correlations were tested for significance at the 5 percent level of confidence, it was found that four of the theoretic hypotheses were supported by the data. However, even though four of the correlations were statistically significant, none of the correlations was of sufficient magnitude to have much predictive value or social significance. Most of the zero-order correlations were of the magnitude of .20 to .35, which was less than the $\pm .37$ necessary for statistical significance at the 5 percent confidence level. The unit of analysis in 11 of the zero-order correlations was the school itself, and thus the sample was small ($n = 28$), which restricted the variance. Both zero-order and multiple correlations were used to test for system effects upon the individual teachers. In the five theoretic hypotheses which predicted social system effects, the teacher was the unit of analysis and the sample n was 585.

When the Pearsonian correlations produced by data analysis were tested for significance, it was found that four of the zero-order correlations were significantly different from zero. In each of the supported hypotheses, the school was the unit of analysis. Significance tests indicated that the perceived psychological distance between principal and teachers was inversely related to the school's attitudinal acceptance of innovations.

It was also demonstrated that the principal's role satisfaction was directly related to the innovativeness of the school in which he

was employed. The more satisfied the principal was with his work and with the working environment, the more innovations the school adopted and thus the more innovative it was.

Another real, non-chance relationship was found between the frequency of role performance feedback from the principal to teachers and the school's attitudinal acceptance of innovations. The more information the teachers received from the principal indicating how they were performing their duties, the higher was their attitudinal acceptance of innovations in that particular school.

Finally, it was demonstrated that role performance feedback from principal to teachers was an important factor in determining school innovativeness. The more feedback the teachers received from the principal about the way in which they were doing their job, the more innovations were adopted by the school.

In summary, the present study tended to indicate that perceived psychological distance between superior and subordinate, amount of role performance feedback from superior to subordinate, and role satisfaction of teachers and principal, are factors which contribute to the attitudinal acceptance of innovations and change by Thai schools and the relative earliness of the school's adoption of new ideas.

The analysis of data also indicated that ⁽²⁾role satisfaction of teachers and principal, participation in decision-making and opinion leadership concentration were not related to the attitudinal acceptance of innovations by the government sponsored secondary schools of Thailand. Also, ⁽³⁾there was no relationship between the communication integration of the social system and the early awareness of educational innovations. In other words, satisfaction with their work and working

environment, the perceived opportunity to take part in relevant decision-making, and the degree to which personal influence was vested in a few individuals rather than in many individuals of the school, did not appear to influence the extent to which Thai teachers perceived innovations as relevant and valuable to their role performance. The interconnectedness of the communication system of each school appeared to have no influence upon the early creation of awareness of new ideas.

Similarly, perceived psychological distance between teachers and the principal, and the teachers' participation in decision-making appeared to have no influence upon the degree to which Thai secondary schools were relatively earlier in adopting new ideas than other schools of the same social system.

None of the five theoretic hypotheses predicting system effects was supported by the data. The degree to which individual teachers were relatively earlier in adopting new ideas than others of the social system was not influenced by characteristics of the schools in which the teachers worked.

Conclusions

Several factors may have contributed to the failure of the present study to predict a greater amount of variance. Research completed in developing countries generally shows that the social system is an important influence upon the behavior of individuals; however, the research described here cannot support the contention of the influence of system effects in Thailand schools. In the following pages, possible factors contributing to the failure to predict are discussed.

1. Equivalence of Meanings: It is possible that the survey instrument, which contained questions formulated largely from U.S. research, did not accurately tap the variables which were supposed to be measured. In other words, the questionnaire may not have been measuring the Thai equivalent of the U.S. variable because of differences in the Thai culture and the problem of attaining cross-cultural equivalence.

2. Translation of Instrument: Three Thai nationals worked independently to translate the survey questions into the Thai language, but there were instances where the three translators did not agree and a subjective judgment was made on the translation to use. Therefore, the instrument may not have been a good translation of the items.

3. Measurement Error: The Bangkok pretest, discussed earlier, was intended to provide a method for eliminating "poor" scale items, but because of delays in (1) coding pretest instruments, (2) delivery of code sheets from Bangkok to Michigan State University for analysis, and (3) obtaining inter-item correlations from Michigan State University, all scale items on the pretest were included in the final instrument. A few items were later dropped from scales in the computation of correlations because of low inter-item correlations computed from test--pretest data. However, it is possible that the scale items did a poor job of measuring the variables.

4. Insensitivity of Measures: Another possible explanation of failure to predict, lies in the insensitivity of the dependent variable measures. In particular, the scale items used to measure attitudinal acceptance of innovations tended to produce little variance across teachers. Most teachers responded either "very beneficial" or "somewhat beneficial," when asked to state their attitudes toward each of the

innovations, making the items dichotomous, in effect, rather than continuous scales. If the responses are not distributed across the scale, but rather are homogenous, no variance is measured and the predicted covariance of variables is not evident. The insensitivity of measures and the homogeneity of the sample response may be the key factors in the low correlations produced in the present study.

5. The Wrong Variables were Measured: There is the possibility that the wrong variables were measured, because the research was conducted in a culture different from the researcher's own. Variables utilized in the present study were those variables which predicted variance in diffusion studies completed in the United States, in a culture with different norms and values than those of the Thais. Additional experience with other cultures may reduce some of the cultural "blindness" of U.S. researchers.

6. Response Validity: Thai informants suggested that the researcher should be extremely cautious in relying solely on questionnaire responses. The affable Thais candidly admit that their fellow countrymen can be characterized as "acquiescent," "untrustworthy," or "unpredictable." Phillips (1965, p. 164) encountered the same reaction among his Thai informants. He quotes one as saying:

We [Thai] people have many minds, different hearts. Whatever others say, we can't be sure whether it is true or not.

In his daily behavior, the Thai seems to be more concerned with the form, than the content, of his discussions; there appears to be a national expectation that the listener will discount the statement as exaggerated anyway, leaving no reason for a person to edit his own statements for accuracy.

Given the national character of the Thais, perhaps future researchers would do well to use other types of measurement than the survey instruments which rely on verbal response and pencil and paper measurements. Certainly, if questionnaires are used for research purposes in Thailand, the results should be tempered by participant observations.

7. Southeast Asia Courtesy Bias: Thais exhibit, along with others in Southeast Asia, another trait which compounds the problems of the survey researcher: a "courtesy bias" or desire to please other individuals, particularly if others can be pleased at no expense. Therefore, Thais will respond in the manner which they believe will satisfy the researcher, even if the response is not a true reflection of their own attitudes or values. Such a "response set" may have been responsible for the homogeneity demonstrated on many of the questions in the survey instrument.

8. Limited Variance in the Thai Culture of Dimensions Measured in the Study: It is also possible that limited variance exists in the Thai culture on the dimensions measured in the research described in the present dissertation. The Thai culture and bureaucratic subculture are generally resistant to change and innovation (Mortimore, 1968, p. 29). Efficiency, productivity, and rationality are not accorded the importance in Thai culture that they are given in Western culture. Innovation is not highly relevant in a bureaucratic system which tends to value the bureaucracy for itself rather than for its production (Siffin, 1966). The authority which gives order and purpose to bureaucratic action in Thailand is not the legal-rational authority of the Weberian model common to Western culture. Because the bureaucracy pervades all levels of life, including the life of the teacher, Thais tend to exhibit more homogeneity of action and thought than do Westerners.

9. Influence of Civil Service Rank: The cultural bias of the researcher resulted in a lack of concern for certain variables which may have an important influence upon the adoption of educational innovations in Thailand. An important independent variable which was overlooked in this study was the influence of civil service rank upon the behavior of teachers and principals in the government sponsored secondary schools. The lack of concern for this variable resulted from the author's experience with a culture in which teachers do not hold a civil service rank. However, in a formal system in which bureaucracy is valued for its own sake, rather than for its efficiency, such a variable as civil service rank might have a profound influence upon the behavior of individuals. Future studies in Thailand no doubt should attempt to incorporate this variable in the research design.

10. Upward Flow of Innovations: It was assumed that there would be a downward flow of new ideas from top executives in the Ministry of Education, through regional education officers and changwad education officials, to school principals and teachers. Many of the questions in the survey instrument were predicated upon such a downward flow of information. However, in reality there was much upward flow of information and ideas about innovations from teachers, to principals, and in turn to the Changwad Education Officers. This flow stemmed from the fact that most of the ten educational innovations included in the study entered the Thai culture from external sources, largely the United States.

The innovations were largely diffused throughout the schools by Ministry and teacher training institute officials who were sent to the United States for graduate training. Professors in the teacher training colleges had direct, personal contact with future teachers. Not

only did the professors describe the innovations they had seen in the U.S., but also they actually demonstrated them to their students.

Thus, newly trained school teachers entered the Thai secondary schools with a knowledge of the innovations which was superior to that of the older teachers or even the school principal.

The changwad education officers were unimportant as a diffusion channel, although the organization chart shows the C.E.O.'s performing an information function in diffusing new ideas. Thus, too much reliance upon the "supposed method" in which the system worked led the research astray.

Despite the shortcomings elaborated above, the present research has contributed to a better understanding of the methods by which educational innovations enter the government sponsored secondary schools of Thailand and are adopted and used by them. The present study indicates that perceived psychological distance from superiors, role satisfaction, and role performance feedback are important factors in teachers' and principals' attitudes toward and adoption of innovations.

Recommendations for Future Research

The present study, as was mentioned in Chapter I, is novel because it is one of the first studies of educational diffusion attempted outside the boundaries of the continental U.S. As a pioneer, the methodological experiences described here may be useful to future researchers as a guide to "what to do" or "not do" when studying the Thai culture.

The conceptual framework of the present investigation relied upon previous conceptualizations and research generalizations from 1,700 U.S. diffusion studies. This heavy reliance upon Western research introduced

a cultural bias into what was considered important and how it was measured. The study design not only committed "sins of commission," but also "sins of omission" by ignoring variables that are important influences upon Thai education. As indicated, the independent variable "Civil Service rank" was totally ignored in the study. The omission is understandable because the federal government does not operate U.S. schools and hence teachers are not required to have a Civil Service rank in the researcher's own culture.

Despite the lack of system effects demonstrated in the present research, other studies conducted in developing countries have shown that system effects should be taken into account when measuring individual innovativeness. Davis (1968) and Saxena (1968), both of whom investigated the influence of system effects in less developed countries, found that system effects were significantly correlated with peasant farmers' innovativeness.

One of the most important system variables which should be included in future diffusion research is social system norms. Norms establish the pattern for behavior of members of the social system. Van den Ban (1960) found that some norms are progressive and encourage change, while others are traditional and discourage change. Failure to include Thai social system norms was perhaps the greatest shortcoming of the present research.

Perhaps the most crucial question which can be answered by future educational diffusion research is: What improvement in educational productivity or increments in learning might be contributed by each proposed innovation? U.S. education seems to have an inherent bias for "change" regardless of the consequences; many innovations adopted

by U.S. schools have contributed little to efficiency or productivity in education. Researchers need to focus their attention upon the consequences of change, not just the adoption of another technique or new idea.

Previous diffusion research has been severely limited by an adoption model which assumed that the decision to adopt an innovation was the end of the process. As a point in fact, the adoption model did not make provision for the rejection of a new idea (Rogers with Shoemaker, 1971). Such weaknesses in conceptual framework need to be eliminated in future research; models must incorporate rejection of innovation as well as the consequences of change.

Educational diffusion could benefit from convergence with organizational research which has long been concerned with such dependent variables as employee morale, efficiency, production, etc. Such variables might prove to be meaningful indicators of the consequences of change in education, if the variables could be translated into educational components.

Finally, diffusion research in developing countries might benefit from a more intensive study of a cross section of the population. Such a study could possibly utilize the case study approach and personal observations rather than survey techniques. The investigators could thus build a theoretical framework upon which to plan more comprehensive studies. The present study suffered perhaps from an overly ambitious design which attempted to encompass too much of an unfamiliar culture.

Implications for Action

Until the results of a research project are diffused and adopted the cost of the study is an unrealized investment of economic and human resources. Therefore, the following recommendations for educational change in Thailand build upon the insights offered by the present investigation.

1. The Thai Ministry of Education need not be greatly concerned over the assignment of teachers to new schools because the school environment appears to have limited influence upon the teachers' attitudes toward new ideas or their willingness to adopt change. More important are the characteristics of the school principal and whether or not he provides adequate role performance feedback and support for his teaching staff.

2. The Ministry of Education must provide funds to the schools for the purchase of library books, audio-visual materials, etc., if the schools are to adopt such innovations on a large scale. The limited acceptance of such items at present is a consequence of the Ministry's failure to appropriate money for this purpose.

3. Attention should be paid to the selection of the school principal since he appears to be an important factor in the teacher's attitudinal acceptance of innovations, and the school's adoption of innovations. The best principals and teachers should be assigned to those schools which most resist change, which have the least contact with modern ideas, and which are most remote from the capital. However, the reverse is commonly practiced--the best principals are sent to the most modern schools in the capital where the teachers have frequent

exposure to new ideas and least need the support and encouragement of the principal in adopting change.

4. Inservice training seminars for principals should stress the desirability of role performance feedback from principal to teacher, increasing teacher participation in decision-making, and reducing the psychological distance between the principal and his teaching faculty.

5. Attention should be focused upon the way in which schools use educational innovations, rather than upon the rapid adoption of proposed ideas. Though Thai schools reported adopting many of the ten innovations utilized in the present study, few of the schools used school libraries, vocational education, or counseling, for instance, in the manner intended by the Ministry of Education.

6. Desired educational innovations should be adapted to the Thai culture to achieve compatibility with the norms, values, and social setting of Southeast Asia. Western influence upon Thai government schools has been significant, as indicated by the innovations studied in the present research. However, the Thai's have a history of "selective adaptation" of foreign ideas. As contrasted with Western norms, the Thai's do not value innovation and change highly. The common man is aware of his country's historical traditions, and he finds much that he wants to preserve; indeed, there is much which should be preserved.

Agencies responsible for diffusing innovation to Thai secondary schools should take pains to assess the compatibility of the innovation with cultural norms and values and should adequately package the innovation to satisfy the needs of principals and teachers.

The future will witness an increasing rate of educational change in developing countries like Thailand. Ministry officials will need

to consider each proposed new idea in terms of one of four possible responses: (1) ignore the idea as meaningless to Thai culture, (2) reject the idea as not desirable to Thailand and incompatible with the country's norms, (3) adopt the idea for limited or widespread use, and (4) adapt the idea to fit the conditions of Thai schools. If the educational innovation is adopted or adapted, then a carefully conceived plan must be developed to successfully diffuse the desired innovation.

BIBLIOGRAPHY

BIBLIOGRAPHY

- Berelson, Bernard R., and others (1954), Voting: A Study of Opinion Formation in Presidential Campaigns, Chicago, Illinois: University of Chicago Press.
- Blau, Peter M. (1957), "Formal Organization: Dimensions of Analysis," American Journal of Sociology, 63: 63-64.
- _____ (1960), "Structural Effects," American Sociological Review, 25: 178-193.
- Carlson, Richard O. (1965), Adoption of Educational Innovations, Eugene, Oregon: Center for the Advanced Study of Educational Administration, University of Oregon.
- Coch, Lester, and J. R. P. French, Jr. (1948), "Overcoming Resistance to Change," Human Relations, 1: 512-532.
- Coleman, James, and others (1957), "The Diffusion of an Innovation," Sociometry, 20: 253-270.
- Coughenour, C. Milton (1966), "Group Factors and the Adoption of Agricultural Innovations in Seven Commerical Farming Localities," Paper presented at the Rural Sociological Society, Miami Beach, Florida.
- _____ (1964), "The Rate of Technological Diffusion among Locality Groups," American Journal of Sociology, 69: 325-339.
- Davis, Burl Edward (1968), System Variables and Agricultural Innovativeness in Eastern Nigeria, Ph.D. Thesis, Michigan State University, East Lansing, Michigan.
- Davis, James A., and others (1961), "A Technique for Analyzing the Effects of Group Composition," American Sociological Review, 26: 215-225.
- Deutschmann, Paul J., and Orlando Fals Borda (1962), Communication and Adoption Patterns in an Andean Village, San Jose, Costa Rica: Programma Interamericano de Information Popular.
- Duncan, James A., and Burton W. Kreitlow (1954), "Selected Cultural Characteristics and the Acceptance of Educational Programs and Practices," Rural Sociology, 19: 349-357.

- Durkheim, Emile (1897), Suicide (Translated by James A. Spaulding and George Simpson, 1951), Glencoe, Illinois: The Free Press.
- Faris, R. E. L., and H. W. Dunham (1939), Mental Disorders in Urban Areas, Chicago, Illinois: The University of Chicago Press, pp. 101-123.
- Fliegel, Frederick C. (1957), "Farm Income and Adoption of Farm Practices," Rural Sociology, 22: 159-162.
- Flinn, William L. (1970), "Influence of Community Values on Innovativeness," American Journal of Sociology, 75: 983-991.
- _____ (1963), "Community Norms in Predicting Innovativeness," Paper presented at the Rural Sociological Society meeting, August 24-26, Northridge, California.
- Fleishman, E., E. Harris, and H. Buitt (1955), Leadership and Supervision in Industry: An Evaluation of a Supervisory Training Program, Columbus, Ohio: Ohio State University Bureau of Educational Research.
- French, J. R. P., Jr., and others (1961), "An Experiment on Participation in a Norwegian Factory," Human Relations, 13: 3-19.
- Frey, Frederick W. (1963), "Surveying Peasant Attitudes in Turkey," Public Opinion Quarterly, 27: 335-355.
- Goldsen, Rose K., and Max Ralis (1957), Factors Related to Acceptance of Innovations in Bang Chan, Thailand, Ithaca, New York: Cornell University, Southeast Asia Program Data Paper No. 25.
- Groves, E. R., and W. F. Ogburn (1928), American Marriage and Family Relationships, New York: Henry Holt.
- Guimarães, Lytton, L. (1970), Network Analysis: An Approach to the Study of Communication Systems, Project on the Diffusion of Innovations in Rural Societies, Technical Report 12, Department of Communication, Michigan State University, East Lansing, Michigan.
- Hoffman, R. L., and N. R. F. Maier (1959), "The Use of Group Decision to Solve a Problem of Fairness," Personnel Psychology, 12: 545-559.
- Katz, Elihu, and Herbert Menzel (1954), On the Flow of Scientific Information in the Medical Profession, New York: Columbia University Bureau of Applied Social Research.
- Katz, Daniel, and Robert L. Kahn (1966), The Social Psychology of Organizations, New York: John Wiley and Sons.
- Kelman, Herbert C. (1961), "Processes of Opinion Change," Public Opinion Quarterly, 25: 57-78.

- Khan, Anwar K. (1968), "Adoption and Internalization of Educational Innovation among Teachers in the Pilot Secondary Schools of West Pakistan," Unpublished Ph.D. Thesis, Michigan State University, East Lansing, Michigan.
- Lerner, Daniel (1958), The Passing of Traditional Society: Modernizing the Middle East, Glencoe, Illinois: Free Press of Glencoe.
- Lewin, Kurt (1947), "Group Decision and Social Change," in E. E. Maccoby and others (eds.), Readings in Social Psychology, Rev. Ed. 1958, New York: Holt, Winston and Rinehart.
- Lin, Nan (1966), "Innovation Internalization in a Formal Organization," Unpublished Ph.D. Thesis, Department of Communication, Michigan State University, East Lansing, Michigan.
- _____, and others (1966), The Diffusion of an Innovation in Three Michigan High Schools: Institution Building through Change, East Lansing, Michigan: Institute for International Studies in Education and Department of Communication.
- Lipset, S. M., and others (1956), Union Democracy, Glencoe, Illinois: The Free Press of Glencoe.
- Maier, N. R. F., and L. R. Homann (1961), "Overcoming Superior-Subordinate Communication Problems in Management," in N. R. F. Maier, L. R. Hoggman, J. G. Hooven, and W. H. Read (eds.), Supervisor-Subordinate Communication in Management, New York: American Management Association Research Study No. 52.
- Mann, F. C. (1957), "Studying and Creating Change: A Means to Understanding Social Organization," Research in Industrial Human Relations, Industrial Relations Association, 17: 146-147.
- Marsh, C. Paul, and A. L. Coleman (1954), "The Relationship of Neighborhood of Residence to Adoption of Recommended Farm Practices," Rural Sociology, 19: 385-390.
- Menzel, Herbert, and Elihu Katz (1955), "Social Relations and Innovation in the Medical Profession: The Epidemiology of a New Drug," Public Opinion Quarterly, 19: 337-352.
- Morse, Nancy C., and E. Reimer (1956), "The Experimental Change of a Major Organizational Variable," Journal of Abnormal Social Psychology, 52: 120-129.
- Mort, Paul R., and Francis G. Cornell (1938), Adaptability of Public School Systems, New York: Bureau of Publications, Teachers College, Columbia University.
- Mortimore, Frederic J. (1968), "Diffusion of Educational Innovations in the Government Secondary Schools of Thailand," Ph.D. Thesis, Michigan State University, East Lansing, Michigan.

- Mulder, Mauk (1960), "The Power Variable in Communication Experiments," Human Relations, 13: 241-256.
- Pelz, Donald C. (1956), "Some Social Factors Related to Performance in a Research Organization," Administrative Science Quarterly, 1: 310-325.
- Powdermaker, Hortense (1962), Coppertown: Changing Africa, New York: Harper and Row.
- Qadir, Syed Abdul (1966), "Adoption of Technological Change in the Rural Philippines: An Analysis of Compositional Effects," Ph.D. Thesis, Ithaca, New York, Cornell University.
- Reiss, Albert J., and Albert L. Rhodes (1961), "Delinquency and Social Class Structure," American Sociological Review, 24: 720-732.
- Rogers, Everett M., and Rabel J. Burdge (1961), Community Norms, Opinion Leadership, and Innovativeness among Truck Growers, Wooster, Ohio: The Agricultural Experiment State Research Bulletin No. 912.
- _____ (1962), Diffusion of Innovations, New York: The Free Press of Glencoe.
- _____, and Johannes C. van Es (1964), Opinion Leadership in Traditional and Modern Colombian Peasant Communities, Diffusion of Innovations Report No. 2, Department of Communication, Michigan State University, East Lansing, Michigan.
- _____, and David Stanfield (1966), "Adoption and Diffusion of New Products: Emerging Generalizations and Hypotheses," Department of Communication, Michigan State University, Mimeographed.
- _____, and others (1969), Diffusion of Innovations: Educational Change in Thai Government Secondary Schools, Michigan State University, East Lansing, Michigan: Institute for International Studies in Education and Department of Communication.
- _____ with F. Floyd Shoemaker (1971), Communication of Innovation: A Cross-Cultural Approach, New York: The Free Press of Glencoe.
- Ryan, Bryce, and Neal C. Gross (1943), "The Diffusion of Hybrid Seed Corn in Two Iowa Communities," Rural Sociology, 8: 15-24.
- Saxena, Anant (1968), "System Effects on Innovativeness among Indian Farmers," Unpublished Ph.D. Thesis, Department of Communication, Michigan State University, East Lansing, Michigan.
- Seashore, Stanley E., and D. G. Bowers (1963), Changing the Structuring and Functioning of an Organization, Monograph No. 33, Ann Arbor, Michigan: Survey Research Center.

- Sharp, Lauriston (1952), "Steel Axes for Stone Age Australians," in Edward H. Spicer (ed.), Human Problems in Technological Change, New York: Russell Sage Foundation.
- Siffin, William J. (1966), The Thai Bureaucracy: Institutional Change and Development, Honolulu: East-West Center.
- Stouffer, S. A., and others (1949), Studies in Social Psychology in World War II, Vol. 1, The American Soldier During Army Life, Princeton, New Jersey: Princeton University Press.
- Van den Ban, Anne Willem (1960), "Locality Group Differences in the Adoption of New Farm Practices," Rural Sociology, 25: 308-320.
- Vroom, V. (1960), Some Personality Determinants of the Effects of Participation, Englewood, Cliffs, New Jersey: Prentice-Hall.
- Westley, Bruce H., and Malcolm S. MacLean, Jr., (1957), "A Conceptual Model for Communications Research," Journalism Quarterly, 34: 31-38.

APPENDIX

APPENDIX A

Teacher Questionnaire Instrument

The United Nations Educational, Social and Cultural Organization (UNESCO) has designated 1960-1970 "The Decade of Development." During this ten-year period all nations--rich and poor, developed and underdeveloped--have been urged to cooperate with one another to combat those universal enemies of all mankind--disease, hunger, and ignorance. But this is to be a creative war, not a destructive war; this is to be a war, not of man against man or nation against nation, but of man united, of nations united, striving to increase the welfare of all mankind everywhere.

If disease, hunger and ignorance are to be eliminated as major sources of human unhappiness, however, education must be improved--and this improved education must be made available to all the world's people. Illiteracy must be abolished and new skills must be provided so that people everywhere can improve their standard of living. The research project in which you are about to participate may, with your cooperation, help not only the people of Thailand but also those people of other lands who desire, as do the citizens of Thailand, a better life for themselves...and their children...and their children's children. Research projects similar to this one are being conducted in Brazil, Nigeria, India and the United States of America. The knowledge obtained from this study will be combined with the knowledge gained in

in these other countries and in this way all countries can benefit; this study is truly an international undertaking.

If this study is to prove fruitful those who answer this questionnaire must do so with complete candor; they must tell us what they really believe. We do not ask you to place your name on this questionnaire because we do not wish to know who has answered; we wish only to determine what a large number of people think.

We realize that this is a long questionnaire and one that is difficult to answer. But if you answer this questionnaire well, you will have the satisfaction of knowing that you have personally contributed to an important international study.

Teacher Questionnaire Instrument

IN THE FOLLOWING SEQUENCE OF QUESTIONS, PLEASE CIRCLE THE NUMBER PRECEDING THE CORRECT ANSWER AND, WHERE REQUESTED, WRITE IN THE INFORMATION WHICH WE HAVE ASKED YOU TO PROVIDE.

Example:

Within the last 7 days I have been to the movies. . .

- | | |
|------------|---------------|
| 1. 7 times | 5. 3 times |
| 2. 6 times | 6. 2 times |
| 3. 5 times | 7. 1 time |
| 4. 4 times | 8. Not at all |

1. Within the last 7 days I have read one or more newspapers on . .

- | | |
|-----------|-----------|
| 1. 7 days | 5. 3 days |
| 2. 6 days | 6. 2 days |
| 3. 5 days | 7. 1 day |
| 4. 4 days | 8. 0 days |

2. Within the last 7 days I have listened to the radio once or more on . . .

- | | |
|-----------|-----------|
| 1. 7 days | 5. 3 days |
| 2. 6 days | 6. 2 days |
| 3. 5 days | 7. 1 day |
| 4. 4 days | 8. 0 days |

3. Within the last 7 days I have listened to the Ministry of Education Radio Station (Vithayu Suksa) once or more on . . .

- | | |
|-----------|-----------|
| 1. 7 days | 5. 3 days |
| 2. 6 days | 6. 2 days |
| 3. 5 days | 7. 1 day |
| 4. 4 days | 8. 0 days |

4. Do you own a radio?

0. No

1. Yes

5. Within the last 7 days I have watched television once or more on..

1. 7 days

5. 3 days

2. 6 days

6. 2 days

3. 5 days

7. 1 day

4. 4 days

8. 0 days

6. Is there a television receiver in the house where you live?

0. No

1. Yes

7. Within the last 7 days I have read from one or more books on. . .

1. 7 days

5. 3 days

2. 6 days

6. 2 days

3. 5 days

7. 1 day

6. 4 days

8. 0 days

8. Within the last 7 days I have read from "general interest" magazines (such as Siam Rath Weekly or Pimp Thai Weekly) on. . .

1. 7 days

5. 3 days

2. 6 days

6. 2 days

3. 5 days

7. 1 day

4. 4 days

8. 0 days

9. Please circle the number preceding the names of those professional journals listed below from which you have read within the last 30 days.

1. Secondary School Journal

2. Wittayasarn

3. Wittayscham

4. Juntr Kasem

5. Mittr Kru

6. Educational Center

7. Mathematics

8. Science

9. Vocational School Journal

Y. Educational Radio

10. For how many years have you been a teacher?

- | | |
|----------------------|-----------------------|
| 1. Less than 2 years | 5. 12-14 years |
| 2. 2-5 years | 6. 15-17 years |
| 3. 6-8 years | 7. 18-20 years |
| 4. 9-11 years | 8. More than 20 years |

11. For how many years have you been a teacher in this school?

- | | |
|----------------------|-----------------------|
| 1. Less than 2 years | 5. 12-14 years |
| 2. 2-5 years | 6. 15-17 years |
| 3. 6-8 years | 7. 18-20 years |
| 4. 9-11 years | 8. More than 20 years |

12. In how many other Thai government secondary schools have you taught?

- | | |
|----------|------------------|
| 0. None | |
| 1. One | 5. Five |
| 2. Two | 6. Six |
| 3. Three | 7. Seven |
| 4. Four | 8. Eight or more |

13. Have you ever taught in a private secondary school?

- | | |
|-------|--------|
| 0. No | 1. Yes |
|-------|--------|

14. Did you attend a Thai college or university?

0. No
1. Yes
- Which one
2. Chulalongkorn University
 3. Prasarn Mitr College of Education
 4. Pratumwan College of Education
 5. Bangsan College of Education
 6. Silpakorn University
 7. Kasetsart University
 8. Thammasat University

15. Did you attend a foreign college or university?

- | | |
|--------|---------|
| 00. No | 01. Yes |
|--------|---------|

Please list below the foreign colleges or universities attended.

Institution

Location

16. Please indicate the highest educational level you have completed.

1. High school certificate (Maw Saw 5).
2. Secondary school teachers certificate (2 years of college)
3. Secondary school teachers certificate plus additional courses
4. College diploma (Bachelors Degree)
5. College degree (Master's Degree)
6. Doctor's Degree (Ph. D.)

17. How many courses in physical and/or biological sciences did you complete in your college and university training?

1. None
2. 1-3 courses
3. 4-6 courses
4. 7-10 courses
5. 11-15 courses
6. 16 or more courses

18. Have you ever traveled outside of Thailand?

0. No
1. Yes

Please list below the countries you have visited and the purpose of your visits.

Country Visited	Purpose of Your Visits (Tourist, study, etc.)
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____

19. Do you know the name of the Director-General, Department of Secondary Education?

0. No
1. Yes

His name is . . .

2. Mr. Sanan Sumitr
3. Mr. Kriang Tamsakul
4. Mr. Bhunthin Attagara
5. Mr. Charoon Vongsayanha
6. Mr. Bhongs Sakdi Varasundharosoth

20. Do you know the name of the Director-General, Department of Educational Techniques?
0. No
 1. Yes
 - His name is . . .
 2. Mr. "Sanan" Sumitr
 3. Mr. Kriang Tamsakul
 4. Mr. Bhunthin Attagara
 5. Mr. Charoon Vongsayanha
 6. Mr. Bhonga Sakdi Varasundharosoth
21. Rhodesia is. . .
- | | |
|---|--|
| <ol style="list-style-type: none"> 1. A city in 3. North America 4. Australia 5. Africa 6. Middle East 7. Latin America 8. I don't know | <ol style="list-style-type: none"> 2. A country |
|---|--|
22. Do you know who is the present Prime Minister of India?
0. No
 1. Yes
 - The Prime Minister's name is. . .
 2. Mr. Nehru
 3. Mr. Shastri
 4. Mrs. Gandhi
 5. Mr. Menon
 6. Mr. Dessi
23. Who is U Thant?
1. Prime Minister of Communist China
 2. U. N. Ambassador from South Viet Nam
 3. Foreign Minister of Japan
 4. Secretary General of the United Nations
 5. I don't know
24. Within the past year have you attended any meetings of government secondary school teachers held in other Changwads?
0. No
 1. Yes
 2. 1-2 times
 3. 3-4 times
 4. 5-6 times
 5. 7-8 times
 6. 9-10 times
 7. 11-12 times
 8. 13 or more times

25. Within the past year have you attended any meetings of government secondary school teachers held in Bangkok?

0. No

1. Yes

About how many times?

2. 1-2 times

3. 3-4 times

4. 5-6 times

5. 7-8 times

6. 9-10 times

7. 11-12 times

8. 13 or more times

26. How many of your five best friends are also teachers?

1. None of my five best friends are also teachers.

2. One of my five best friends is also a teacher.

3. Two of my five best friends are also teachers.

4. Three of my five best friends are also teachers.

5. Four of my five best friends are also teachers.

6. All five of my best friends are also teachers.

27. Please list below the names of the three teachers in this school whom you most respect as good teachers.

1. _____

2. _____

3. _____

28. Please list below the names of the three teachers in this school whose opinions on new educational practices are usually most valuable to you.

1. _____

2. _____

3. _____

29. Please list below the names of the three teachers in this school from whom you most frequently ask advice when you have problems related to teaching.

1. _____

2. _____

3. _____

30. Please list below the names of the three teachers in this school who are, in your opinion, most active in community affairs (affairs outside the school).

1. _____
2. _____
3. _____

31. Please list below the names of the three teachers in this school who are, in your opinion, most willing to use new educational practices.

1. _____
2. _____
3. _____

32. How, in general, would you characterize your attitude to adoption of new educational practices?

1. I usually have a very favorable attitude to adoption of new educational practices.
2. I usually have a cautious but somewhat favorable attitude to adoption of new educational practices.
3. I usually have a somewhat unfavorable attitude to adoption of new educational practices.
4. I usually have a very unfavorable attitude to adoption of new educational practices.

33. How, in general, would you characterize the attitude of your school principal to adoption of new educational practices?

1. I think my principal usually has a very favorable attitude to adoption of new educational practices.
2. I think my principal usually has a cautious but somewhat favorable attitude to adoption of new educational practices.
3. I think my principal usually has a somewhat unfavorable attitude to adoption of new educational practices.
4. I think my principal usually has a very unfavorable attitude to adoption of new educational practices.

34. How, in general, would you characterize the attitude of your fellow teachers in this school to adoption of new educational practices?
1. I think they usually have a very favorable attitude to adoption of new educational practices.
 2. I think they usually have a cautious but somewhat favorable attitude to adoption of new educational practices.
 3. I think they usually have a somewhat unfavorable attitude to adoption of new educational practices.
 4. I think they usually have a very unfavorable attitude to adoption of new educational practices.
35. How, in general, would you characterize the attitude of your Amphur Education Officer to adoption of new educational practices?
1. I think he usually has a very favorable attitude to adoption of new educational practices.
 2. I think he usually has a cautious but somewhat favorable attitude to adoption of new educational practices.
 3. I think he usually has a somewhat unfavorable attitude to adoption of new educational practices.
 4. I think he usually has a very unfavorable attitude to adoption of new educational practices.
36. How, in general, would you characterize the attitude of your Changwad Education Officer to adoption of new educational practices?
1. I think he usually has a very favorable attitude to adoption of new educational practices.
 2. I think he usually has a cautious but somewhat favorable attitude to adoption of new educational practices.
 3. I think he usually has a somewhat unfavorable attitude to adoption of new educational practices.
 4. I think he usually has a very unfavorable attitude to adoption of new educational practices.
37. How, in general, would you characterize the attitude of the Under-Secretary of State for Education to the adoption of new educational practices?
1. I think he usually has a very favorable attitude to adoption of new educational practices.
 2. I think he usually has a cautious but somewhat unfavorable attitude to adoption of new educational practices.
 3. I think he usually has a somewhat unfavorable attitude to adoption of new educational practices.
 4. I think he usually has a very unfavorable attitude to adoption of new educational practices.

38. Listed below are several categories of people who have some interest in how well you teach. The opinion that some of these people have about your ability is probably very important to you while the opinion that others have of your ability is probably less important to you. Please rank these people in the order of importance which you attach to their opinion of your teaching ability. (1 - most important; 2 - second most important; . . . 11 - least important)

☐ School Students
☐ Minister of Education
☐ Changwad Governor
☐ Parents of students
☐ School principal
☐ School teachers
☐ Amphur Education Officer
☐ Changwad Education Officer
☐ Nai Amphur
☐ Minister of Interior
☐ Under-Secretary of State for Education

39. Please circle the number preceding those topics in the following list which you have discussed with other teachers during the last six months.

1. Teaching handicrafts in Thai Government Secondary Schools
2. Improvement and use of the school library.
3. Co-education in Thai government secondary schools
4. New textbooks
5. Use of objective testing techniques
6. Use of audio-visual aids in teaching (film projectors, films, slide projectors, slides, tape recorders, maps, pictures, flannel boards, etc.)
7. Use of American Peace Corps Volunteers as teachers in Thai government secondary schools.
8. Formation of Parent-Teacher Associations in Thai government secondary schools
9. Guidance counseling in Thai government secondary schools
- X. Organization of government secondary schools into departments
- Y. Class discussion method of instruction

40. During the past six months have you told someone in this school about any of the new educational practices listed in question 39?

0. No

1. Yes

41. Compared with the other teachers in this school, do you think you are (1) more, or (2) less likely to be asked for your opinion about the new educational practices listed in question 39?

1. I think I am more likely to be asked for my opinion about new educational practices than are most of the other teachers in this school.
2. I think I am less likely to be asked for my opinion about new educational practices than are most of the other teachers in this school.

42. Do you have the feeling that you are generally regarded by the other teachers in this school as a good source of information about new educational practices--such as those listed in question 39?

0. No
1. Yes

43. When you and your fellow teachers in this school discuss new educational practices, which do you most frequently do?

1. I usually listen while others talk.
2. I usually talk while others listen.
3. I usually talk and listen about equally.

44. Have you heard that American Peace Corps Volunteers are now teaching in some Thai government secondary schools?

0. No
1. Yes

About how many years ago did you first hear that American Peace Corps Volunteers were being used as teachers in Thai government secondary schools?

2. Less than 1 year ago
3. 1 or 2 years ago
4. 3 or 4 years ago
5. 5 or 6 years ago
6. 7 or 8 years ago
7. 9 or 10 years ago
8. More than 10 years ago.

45. What is your opinion about the use of the American Peace Corps Volunteers as teachers in Thai government secondary schools?

I believe that the use of American Peace Corps Volunteers as teachers in government secondary schools is, on the whole,

1. very beneficial
2. somewhat beneficial
3. not very beneficial
4. not at all beneficial

46. Is an American Peace Corps Volunteer teaching in this school now?

- 0. No
- X. I don't know
- 1. Yes

About how many years ago did an American Peace Corps Volunteer first teach in this school?

- 2. Less than 1 year ago
- 3. 1 or 2 years ago
- 4. 3 or 4 years ago
- 5. 5 or 6 years ago
- 6. 7 or 8 years ago
- 7. 9 or 10 years ago
- 8. More than 10 years ago

47. Have you heard that some Thai government secondary schools now teach handicrafts to their students?

- 0. No
- 1. Yes

About how many years ago did you first hear that some Thai government secondary schools were teaching handicrafts?

- 2. Less than 1 year ago
- 3. 1 or 2 years ago
- 4. 3 or 4 years ago
- 5. 5 or 6 years ago
- 6. 7 or 8 years ago
- 7. 9 or 10 years ago
- 8. More than 10 years ago

48. What is your opinion about the teaching of handicrafts in Thai government secondary schools?

I believe the teaching of handicrafts in government secondary schools is . . .

- 1. very beneficial
- 2. somewhat beneficial
- 3. not very beneficial
- 4. not at all beneficial

49. Does this school now teach handicrafts to its students?

- 0. No
- X. I don't know.
- 1. Yes
 - About how many years ago did this school first teach handicrafts?
- 2. Less than 1 years ago
- 3. 1 or 2 years ago
- 4. 3 or 4 years ago
- 5. 5 or 6 years ago
- 6. 7 or 8 years ago
- 7. 9 or 10 years ago
- 8. More than 10 years ago

50. Have you heard that some Thai government secondary schools have now formed Parent-Teacher Associations?

- 0. No
- 1. Yes
 - About how many years ago did you first hear that some Thai government secondary schools had formed Parent-Teacher Associations?
- 2. Less than 1 year ago
- 3. 1 or 2 years ago
- 4. 3 or 4 years ago
- 5. 5 or 6 years ago
- 6. 7 or 8 years ago
- 7. 9 or 10 years ago
- 8. More than 10 years ago

51. What is your opinion about the formation of Parent-Teacher Associations in Thai government secondary schools?

- I believe that Parent-Teacher Associations are...
 - 1. very beneficial
 - 2. somewhat beneficial
 - 3. not very beneficial
 - 4. not at all beneficial

52. Does this school now have a Parent-Teacher Association?

- 0. No
- X. I don't know
- 1. Yes

About how many years ago did this school first have a Parent-Teacher Association?

- 2. Less than 1 year ago
- 3. 1 or 2 years ago
- 4. 3 or 4 years ago
- 5. 5 or 6 years ago
- 6. 7 or 8 years ago
- 7. 9 or 10 years ago
- 8. More than 10 years ago

53. Have you heard that some Thai government secondary schools now provide guidance counseling for their students?

- 0. No
- 1. Yes

About how many years ago did you first hear that some Thai government secondary schools were providing guidance counseling?

- 2. Less than 1 year ago
- 3. 1 or 2 years ago
- 4. 3 or 4 years ago
- 5. 5 or 6 years ago
- 6. 7 or 8 years ago
- 7. 9 or 10 years ago
- 8. More than 10 years ago

54. What is your opinion about the provision of guidance counseling in Thai government secondary schools?

I believe that provision of guidance counseling in Thai government secondary schools is . . .

- 1. Very beneficial
- 2. Somewhat beneficial
- 3. Not very beneficial
- 4. Not at all beneficial

55. Does this school now provide guidance counseling for its students?

- 0. No
- X. I don't know
- 1. Yes

About how many years ago did this school first provide guidance counseling for its students?

- 2. Less than 1 year ago
- 3. 1 or 2 years ago
- 4. 3 or 4 years ago
- 5. 5 or 6 years ago
- 6. 7 or 8 years ago
- 7. 9 or 10 years ago
- 8. More than 10 years ago

56. Have you heard that some Thai government secondary schools are now organized into departments? (departments of science, department of social studies, etc.)

- 0. No
- 1. Yes

About how many years ago did you first hear that some Thai government secondary schools were organized into departments?

- 2. Less than 1 year ago
- 3. 1 or 2 years ago
- 4. 3 or 4 years ago
- 5. 5 or 6 years ago
- 6. 7 or 8 years ago
- 7. 9 or 10 years ago
- 8. More than 10 years ago

57. What is your opinion about the organization of Thai government secondary schools into departments?

I believe that organization of Thai government secondary schools into departments is . . .

- 1. Very beneficial
- 2. Somewhat beneficial
- 3. Not very beneficial
- 4. Not at all beneficial

58. Is this school now organized into departments?

- 0. No
- X. I don't know
- 1. Yes

About how many years ago was this school first organized into departments?

- 2. Less than 1 year ago
- 3. 1 or 2 years ago
- 4. 3 or 4 years ago
- 5. 5 or 6 years ago
- 6. 7 or 8 years ago
- 7. 9 or 10 years ago
- 8. More than 10 years ago

59. Have you heard that some teachers in Thai government secondary schools now use slide projectors and slides to aid them in teaching their students?

- 0. No
- 1. Yes

About how many years ago did you first hear that some Thai government secondary school teachers were using slide projectors?

- 2. Less than 1 year ago
- 3. 1 or 2 years ago
- 4. 3 or 4 years ago
- 5. 5 or 6 years ago
- 6. 7 or 8 years ago
- 7. 9 or 10 years ago
- 8. More than 10 years ago

60. What is your opinion about the use of slide projectors and slides as teaching aids in Thai government secondary schools?

I believe that the use of slide projectors and slides as teaching aids is . . .

- 1. Very beneficial
- 2. Somewhat beneficial
- 3. Not very beneficial
- 4. Not at all beneficial

61. Does this school now have a slide projector which you could use in your teaching?

0. No

X. I don't know

1. Yes

About how many years ago did this school first acquire a slide projector which you could use in your teaching?

2. Less than 1 year ago

3. 1 or 2 years ago

4. 3 or 4 years ago

5. 5 or 6 years ago

6. 7 or 8 years ago

7. 9 or 10 years ago

8. More than 10 years ago

62. Have you heard that some Thai government secondary school teachers now use objective tests?

0. No

1. Yes

About how many years ago did you first hear that some Thai government secondary school teachers were using objective tests?

2. Less than 1 year ago

3. 1 or 2 years ago

4. 3 or 4 years ago

5. 5 or 6 years ago

6. 7 or 8 years ago

7. 9 or 10 years ago

8. More than 10 years ago

63. What is your opinion about the use of objective tests in Thai government secondary schools?

I believe that objective tests are. . .

1. Very beneficial

2. Somewhat beneficial

3. Not very beneficial

4. Not at all beneficial

64. Do you now use objective tests in the courses you teach?

- 0. No
- 1. Yes

About how many years ago did you first use objective tests in the courses you teach?

- 2. Less than 1 year ago
- 3. 1 or 2 years ago
- 4. 3 or 4 years ago
- 5. 5 or 6 years ago
- 6. 7 or 8 years ago
- 7. 9 or 10 years ago
- 8. More than 10 years ago

65. Have you heard that some Thai government secondary school teachers now use the class discussion method of instruction?

- 0. No
- 1. Yes

About how many years ago did you first hear that some Thai government secondary school teachers were using the class discussion method of instruction?

- 2. Less than 1 year ago
- 3. 1 or 2 years ago
- 4. 3 or 4 years ago
- 5. 5 or 6 years ago
- 6. 7 or 8 years ago
- 7. 9 or 10 years ago
- 8. More than 10 years ago

66. What is your opinion about use of the class discussion method of instruction in Thai government secondary schools?

I believe that the class discussion method of instruction is . . .

- 1. Very beneficial
- 2. Somewhat beneficial
- 3. Not very beneficial
- 4. Not at all beneficial

67. Do you now use the class discussion method of instruction in the courses you teach?

- 0. No
- 1. Yes

About how many years ago did you first use the class discussion method of instruction?

- 2. Less than 1 year ago
- 3. 1 or 2 years ago
- 4. 3 or 4 years ago
- 5. 5 or 6 years ago
- 6. 7 or 8 years ago
- 7. 9 or 10 years ago
- 8. More than 10 years ago

IMPORTANT

THE FOLLOWING ITEMS ARE DESIGNED TO DETERMINE YOUR ATTITUDE TO THE VALUE OF ASSIGNING OUTSIDE READING TO THAI GOVERNMENT SECONDARY SCHOOL STUDENTS. PLEASE READ EACH STATEMENT OR QUESTION CAREFULLY BEFORE GIVING YOUR RESPONSE. PLEASE ANSWER EVERY QUESTION.

FOR THE PURPOSE OF THIS STUDY, ASSIGNMENT OF READING IN LIBRARY BOOKS MEANS THAT THE TEACHER REQUIRES THAI SECONDARY SCHOOL STUDENTS TO READ FROM BOOKS OTHER THAN THE REGULAR TEXTBOOKS USED IN THE COURSE. SUCH READING ASSIGNMENTS WOULD BE CONSIDERED SUPPLEMENTAL. THE BOOKS FROM WHICH READING IS ASSIGNED MAY BE KEPT EITHER IN THE CLASSROOM OR IN A SCHOOL LIBRARY ROOM.

68. Have you heard that some teachers in Thai government secondary schools now require that their students read assignments in library books?

- 0. No
- 1. Yes

About how many years ago did you first hear that some teachers in Thai government secondary schools were requiring their students to read from library books?

- | | |
|-------------------------|---------------------------|
| 2. Less than 1 year ago | 5. 5 or 6 years ago |
| 3. 1 or 2 years ago | 6. 7 or 8 years ago |
| 4. 3 or 4 years ago | 7. 9 or 10 years ago |
| | 8. More than 10 years ago |

69. What is your opinion about the idea that students in Thai government secondary schools should be required to read library books?

I believe that this requirement is educationally . . .

1. Very beneficial
2. Somewhat beneficial
3. Not very beneficial
4. Not at all beneficial

70. Do you now require that your students read assignments in library books?

0. No
1. Yes

About how many years ago did you first require that your students read assignments in library books?

2. Less than 1 year ago
3. 1 or 2 years ago
4. 3 or 4 years ago
5. 5 or 6 years ago
6. 7 or 8 years ago
7. 9 or 10 years ago
8. More than 10 years ago

71. Does this school now have books which are of use to the students in the courses you teach?

0. No
- X. I don't know
1. Yes

About how many library books does this school now have which would be of use to the students in the courses you teach?

2. Less than five books
3. 6 to 10 books
4. 11 to 15 books
5. 16 to 20 books
6. 21 to 25 books
7. 26 to 30 books
8. More than 30 books.

72. Does this school now have a separate room (library) in which books are kept?

- 0. No
- X. I don't know
- 1. Yes

About how many years ago did this school first set aside a room to be used as a library?

- 2. Less than 1 year ago
- 3. 1 or 2 years ago
- 4. 3 or 4 years ago
- 5. 5 or 6 years ago
- 6. 7 or 8 years ago
- 7. 9 or 10 years ago
- 8. More than 10 years ago

73. Does this school now have a person trained in library work to supervise the school library?

- 0. No
- X. I don't know
- 1. Yes

About how many years ago did this school first acquire the services of a trained librarian?

- 2. Less than 1 year ago
- 3. 1 or 2 years ago
- 4. 3 or 4 years ago
- 5. 5 or 6 years ago
- 6. 7 or 8 years ago
- 7. 9 or 10 years ago
- 8. More than 10 years ago.

74. I first learned that some teachers in Thai government secondary schools require that their students read library books (choose only one)

- 1. from one of my college instructors
- 2. from a teacher in a government secondary school
- 3. from the Principal of a government secondary school where I taught
- 4. at a conference
- 5. from an Amphur Education Officer
- 6. from a Changwad Education Officer
- 7. from a Ministry of Education publication
- 8. from a Ministry of Education directive
- 9. from a school supervisor (inspector)
- X. from a college textbook
- Y. while studying abroad

75. How, in general, would you characterize the attitudes of your fellow teachers in this school to assignment of reading in library books?

I think their attitude, in general, is. . .

1. Very favorable
2. Slightly favorable
3. Slightly unfavorable
4. Very unfavorable
5. I don't know what their attitude is.

76. How, in general, would you characterize the attitude of your school principal to assignment of reading in library books?

I think my principal's attitude is. . .

1. Very favorable
2. Slightly favorable
3. Slightly unfavorable
4. Very unfavorable
5. I don't know what the attitude of my principal is.

77. How, in general, would you characterize the attitude of your Changwad Education Officer to the assignment of reading in library books?

I think his attitude is. . .

1. Very favorable
2. Slightly favorable
3. Slightly unfavorable
4. Very unfavorable
5. I don't know what his attitude is.

78. How, in general, would you characterize the attitudes of your students to the assignment of reading in library books?

I think their attitude in general is . . .

1. Very favorable
2. Slightly favorable
3. Slightly unfavorable
4. Very favorable
5. I don't know what their attitude is.

79. How, in general, would you characterize the attitude of your Amphur Education Officer to the assignment of reading in library books?

I think his attitude is . . .

1. Very favorable
2. Slightly favorable
3. Slightly unfavorable
4. Very unfavorable
5. I don't know what his attitude is.

80. How, in general, would you characterize the attitudes of Ministry of Education officials to assignment of reading in library books?

I think their attitude, in general, is. . .

1. Very favorable
2. Slightly favorable
3. Slightly unfavorable
4. Very unfavorable
5. I don't know what their attitude is.

81. How, in general, would you characterize the attitudes of Thai government secondary school supervisors to assignment of reading in library books?

I think their attitude, in general, is . . .

1. Very favorable
2. Slightly favorable
3. Slightly unfavorable
4. Very unfavorable
5. I don't know what their attitude is.

82. About how many times within the past three months have you discussed the assignment of reading in library books with your school principal?

1. 7 or 8 times
2. 5 or 6 times
3. 3 or 4 times
4. 1 or 2 times
5. Not at all.

83. About how many times within the past three months have you discussed the assignment of reading in library books with your fellow teachers in this school?

- | | |
|-----------------|-----------------|
| 1. 7 or 8 times | 4. 1 or 2 times |
| 2. 5 or 6 times | 5. None |
| 3. 3 or 4 times | |

84. About how many times within the past three months have you discussed the assignment of reading in library books with your Changwad Education Officer?
1. 7 or 8 times
 2. 5 or 6 times
 3. 3 or 4 times
 4. 1 or 2 times
 5. None
85. About how many times within the past three months have you discussed the assignment of reading in library books with a library supervisor?
1. 7 or 8 times
 2. 5 or 6 times
 3. 3 or 4 times
 4. 1 or 2 times
 5. None
86. The attitudes of my students to assignment of reading in library books should influence my decision to make such assignments?
1. I agree strongly
 2. I agree slightly
 3. I disagree slightly
 4. I disagree strongly.
87. The attitudes of my fellow teachers in this school to assignment of reading in library books should influence my decision to make such assignments.
1. I agree strongly
 2. I agree slightly
 3. I disagree slightly
 4. I disagree strongly.
88. The attitude of my school principal to assignment of reading in library books should influence my decision to make such assignments.
1. I agree strongly.
 2. I agree slightly
 3. I disagree slightly
 4. I disagree strongly.

89. The attitude of my Changwad Education Officer to assignment of reading in library books should influence my decision to make such assignments.

1. I agree strongly
2. I agree slightly
3. I disagree slightly
4. I disagree strongly.

90. The attitudes of Ministry of Education officials to assignment of reading in library books should influence my decision to make such assignments.

1. I agree strongly
2. I agree slightly
3. I disagree slightly
4. I disagree strongly.

91. In the preceding five questions you have been asked to express your opinion about what people in the Thai educational system should be involved in deciding whether or not government secondary school students will be required to read assignments in library books. As some of these people may favor assignment of reading in library books while others oppose such assignments, we would now like you to indicate which group (or individual) should have the power to make a final decision on whether or not Thai government secondary school students will be required to read assignments in library books. Please circle the number preceding that group (or individual) which you feel should have some power to make the final decision.

1. Students
2. Teachers
3. School principals
4. Amphur Education Officers
5. Changwad Education Officers
6. Director-General of the Department of Secondary Education
7. Under-Secretary of State for Education
8. Minister of Education

92. Teachers in Thai government secondary schools who assign reading in library books must conduct their classes differently than do teachers who do not assign such reading.

1. I agree strongly
2. I agree slightly
3. I disagree slightly
4. I disagree strongly.

93. Students in Thai government secondary schools who are required to read assignments in library books usually obtain higher scores on tests than do students who do not read library books.

1. I agree strongly
2. I agree slightly
3. I disagree slightly
4. I disagree strongly.

94. Please circle the number preceding those items listed below which you consider to be disadvantages of assigning reading in library books.

1. Thai government secondary school students do not read well enough to derive great benefit from reading assignments in library books.
2. Time spent in reading from library books would be better spent devoted to classroom lectures and exercises.
3. The reading of library books does not serve to improve the test scores of Thai government secondary school students.
4. Many Thai government secondary school teachers do not know how to assign and supervise reading in library books so that students will derive benefit therefrom.
5. Many Thai government secondary school teachers find themselves incapable of incorporating outside reading into their classroom work.
6. The libraries of many Thai government secondary schools contain an insufficient selection and number of books to render reading assignments in library books meaningful.
7. The lack of trained librarians in Thai government secondary schools serves to reduce the effectiveness of library facilities to the point where such assignments are meaningless.

95. Please circle the number preceding those items listed below which you consider to be advantages of assigning reading in library books.
1. Students in Thai government secondary schools frequently learn more as a result of reading library books than they do if such reading assignments are not made.
 2. Thai government secondary school students who read assignments in library books obtain higher scores on examinations than do those students who do not read such assignments.
 3. Assignment of reading in library books serves to improve the Thai government secondary school students' reading skill and reading comprehension.
 4. Thai government secondary school students who are assigned reading in library books obtain a deeper understanding of the subject matter than do those who must rely for knowledge on lectures and textbooks only.
 5. The breadth of knowledge possessed by Thai government secondary school students who regularly read library books is greater than that of students who do not read library books regularly.
 6. Reading the biographies of famous figures in Thai history provides Thai government secondary school students with models which they then emulate.
96. After weighing all the advantages and disadvantages of assigning reading in library books, what is your conclusion?
1. I prefer that Thai government secondary school students read assignments in library books.
 2. I prefer that Thai government secondary school students do not read assignments in library books.
97. Have you heard that the Ministry of Education is now encouraging all government secondary schools to establish libraries?
0. No
 1. Yes
About how many years ago did you first hear that the Ministry of Education was encouraging all government secondary schools to establish libraries?
 2. Less than 1 year ago
 3. 1 or 2 years ago
 4. 3 or 4 years ago
 5. 5 or 6 years ago
 6. 7 or 8 years ago
 7. 9 or 10 years ago
 8. More than 10 years ago.

IMPORTANT

THE FOLLOWING 23 ITEMS ARE DESIGNED TO DETERMINE YOUR ATTITUDE TOWARD THE VALUE OF THAI GOVERNMENT CO-EDUCATIONAL SECONDARY SCHOOLS. PLEASE READ EACH STATEMENT CAREFULLY BEFORE GIVING YOUR RESPONSE. PLEASE ANSWER EVERY QUESTION.

FOR THE PURPOSE OF THIS STUDY, CO-EDUCATION MEANS THAT BOTH BOYS AND GIRLS GO TO SCHOOL IN THE SAME BUILDING, ATTEND CLASSES TOGETHER, AND ARE TAUGHT BY THE SAME TEACHERS.

98. Have you heard that ~~some~~ Thai government secondary schools are now coeducational (enroll and teach both boys and girls in the same school)?

0. No

1. Yes

About how many years ago did you first learn that some Thai government secondary schools were coeducational?

2. Less than 1 year ago

3. 1 or 2 years ago

4. 3 or 4 years ago

5. 5 or 6 years ago

6. 7 or 8 years ago

7. 9 or 10 years ago

8. More than 10 years ago.

99. What is your opinion about coeducation in Thai government secondary schools?

I believe that coeducation in Thai government secondary schools is, educationally,

1. Very beneficial

2. Somewhat beneficial

3. Not very beneficial

4. Not at all beneficial.

100. Is this school now organized on a coeducational basis?

- 0. No
- 1. Yes
About how many years ago was this school first organized on a coeducational basis?
- 2. Less than 1 year ago
- 3. 1 or 2 years ago
- 4. 3 or 4 years ago
- 5. 5 or 6 years ago
- 6. 7 or 8 years ago
- 7. 9 or 10 years ago
- 8. More than 10 years ago

101. I first learned that some Thai government secondary schools were organized on a coeducational basis....(choose only one)

- 1. From one of my college instructors
- 2. From a teacher in a government secondary school
- 3. From the principal of a government secondary school where I taught
- 4. At a conference
- 5. From an Amphur Education Officer
- 6. From a Changwad Education Officer
- 7. From a Ministry of Education publication
- 8. From a Ministry of Education directive
- 9. From a school supervisor (inspector)
- X. From a college textbook
- Y. While studying abroad

102. How, in general, do you think your school principal would feel about converting all separate boys and girls government secondary schools to coeducational schools?

I think his attitude would be . . .

- 1. Very favorable
- 2. Slightly favorable
- 3. Slightly unfavorable
- 4. Very unfavorable
- 5. I can't imagine what his attitude might be.

103. How, in general, do you think your fellow teachers in this school would feel about converting all separate boys and girls government secondary schools to coeducational schools?

I think their attitude in general would be . . .

1. Very favorable
2. Slightly favorable
3. Slightly unfavorable
4. Very unfavorable
5. I can't imagine what their attitudes might be.

104. How, in general, do you think your students would feel about converting all separate boys and girls government secondary schools to coeducational schools?

I think their attitude in general would be . . .

1. Very favorable
2. Slightly favorable
3. Slightly unfavorable
4. Very unfavorable
5. I can't imagine what their attitudes might be.

105. How, in general, do you think your Amphur Education Officer would feel about converting all separate boys and girls government secondary schools to coeducational schools?

I think his attitude would be . . .

1. Very favorable
2. Slightly favorable
3. Slightly unfavorable
4. Very unfavorable
5. I can't imagine what his attitude might be.

106. How, in general, do you think your Changwad Education Officer would feel about converting all separate boys and girls government secondary schools to coeducational schools?

I think his attitude would be . . .

1. Very favorable
2. Slightly favorable
3. Slightly unfavorable
4. Very unfavorable
5. I can't imagine what his attitude might be.

107. How, in general, do you think Ministry of Education Officials would feel about converting all separate boys and girls government secondary schools to coeducational schools?

I think their attitudes in general would be . . .

1. Very favorable
2. Slightly favorable
3. Slightly unfavorable
4. Very unfavorable
5. I can't imagine what their attitudes might be. . .

108. About how many times within the past three months have you discussed coeducation with your school principal?

1. 7 or 8 times
2. 5 or 6 times
3. 3 or 4 times
4. 1 or 2 times
5. None

109. About how many times within the past three months have you discussed coeducation with your fellow teachers in this school?

1. 7 or 8 times
2. 5 or 6 times
3. 3 or 4 times
4. 1 or 2 times
5. None

110. The attitude of students to attending coeducational government secondary schools should influence the decision of whether or not to convert all separate boys and girls government secondary schools to coeducational schools.

1. I agree strongly
2. I agree slightly
3. I disagree slightly
4. I disagree strongly.

111. The attitudes of Thai teachers to teaching in coeducational government secondary schools should influence the decision of whether or not to convert all separate boys and girls government secondary schools to coeducational schools.

1. I agree strongly
2. I agree slightly
3. I disagree slightly
4. I disagree strongly.

112. The attitudes of Thai secondary school principals to coeducational government secondary schools should influence the decision of whether or not to convert all separate boys and girls government secondary schools to coeducational schools.

1. I agree strongly
2. I agree slightly
3. I disagree slightly
4. I disagree strongly.

113. The attitudes of Changwad Education Officers to coeducational government secondary schools should influence the decision of whether or not to convert all separate boys and girls government secondary schools to coeducational schools.

1. I agree strongly
2. I agree slightly
3. I disagree slightly
4. I disagree strongly.

114. The attitudes of Ministry of Education officials to coeducational government secondary schools should influence the decision of whether or not to convert all separate boys and girls government secondary schools to coeducational schools.

1. I agree strongly
2. I agree slightly
3. I disagree slightly
4. I disagree strongly.

115. In the preceding five questions you have been asked to express your opinion about which people in the Thai educational system should be involved in deciding whether or not all separate boys and girls government secondary schools should be converted to coeducational schools. As some of these people may favor converting all separate boys and girls government secondary schools to coeducational schools and some of them oppose this idea, we would now like you to indicate which group (or individual) should have the power to make a final decision on this matter. Please circle the number preceding that group (or individual) which you feel should have power to make the final decision.

- | | |
|------------------------------|--|
| 1. Students | 5. Changwad Education Officers |
| 2. Teachers | 6. Director-General of the Department of Secondary Education |
| 3. School principals | 7. Under-Secretary of State for Education |
| 4. Amphur Education Officers | 8. Minister of Education |

116. Teachers who teach in coeducational government secondary schools must conduct their classes differently than do those who work in either separate boys or girls schools.

1. I agree strongly
2. I agree slightly
3. I disagree slightly
4. I disagree strongly.

117. Students who attend coeducational government secondary schools usually obtain higher scores on tests than do students who attend separate schools for boys or girls.

1. I agree strongly
2. I agree slightly
3. I disagree slightly
4. I disagree strongly.

118. Please circle the number preceding those items below which you believe to be disadvantages of coeducation in Thai government secondary schools.

1. Attending coeducational government secondary schools encourages immoral behavior among Thai students.
2. Thai government secondary school students do not learn as well when boys and girls attend classes together.
3. Discipline is more difficult to maintain in Thai government coeducational secondary schools than in separate schools for boys and girls.
4. Coeducation is not the traditional form of secondary education in Thailand.
5. Students who attend coeducational government secondary schools do not express themselves freely because of the fear of shame.
6. Thai boys and girls do not mature at the same rate, so although students may be of equal age the girls will be more emotionally mature than the boys in government coeducational secondary schools.
7. Improper forms of address and speech are learned when Thai boys and girls attend classes together in government coeducational secondary schools.

119. Please circle the numbers preceding those items below which you believe to be advantages of coeducation in Thai government secondary schools.

1. A system of coeducational secondary schools is cheaper to build and maintain rather than a system of separate schools for boys and girls.
2. Thai boys and girls learn better to adjust to the opposite sex in coeducational secondary schools.
3. Thai boys and girls try harder to learn in the presence of the opposite sex in coeducational secondary schools.
4. Sex education is made easier in coeducational secondary schools.
5. Thai boys and girls prefer coeducational secondary schools to separate schools for boys and girls.
6. Competition for good grades makes both boys and girls study harder in coeducational secondary schools.

120. After weighing all the advantages and disadvantages of coeducation in Thai government secondary schools, what is your conclusion?

1. I feel that all Thai government secondary schools should be organized on a coeducational basis.
2. I feel that all Thai government secondary schools should be organized on the basis of separate schools for boys and girls.
3. I feel that all Thai government secondary schools should be organized on a coeducational basis for students in grades M.S.1-M.S.3 only.
4. I feel that all Thai government secondary schools should be organized on a coeducational basis for students in grades M.S.4-M.S.5 only.
5. I feel that the Thai government should continue the present practice of organizing some government secondary schools on a coeducational basis while maintaining others as separate schools for boys and girls.

IMPORTANT

LISTED BELOW ARE SOME STATEMENTS PEOPLE HAVE GIVEN AS THEIR OPINION ON SEVERAL TOPICS. YOU MAY FIND YOURSELF AGREEING STRONGLY WITH SOME OF THE STATEMENTS...DISAGREEING JUST AS STRONGLY WITH OTHERS. WHETHER YOU AGREE OR DISAGREE WITH ANY STATEMENT, YOU CAN BE SURE THAT MANY OTHER PEOPLE FEEL THE SAME AS YOU DO.

121. In this complicated world of ours the only way we can know what's going on is to rely on leaders or experts who can be trusted.

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole
6. I disagree very much.

122. My blood boils whenever a person stubbornly refuses to admit he's wrong.

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

123. There are two kinds of people in this world: those who are for the truth and those who are against the truth.

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

124. Most people just don't know what's good for them.

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

125. To compromise with our political opponents is dangerous because it usually leads to the betrayal of our own side.

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

126. It is often desirable to reserve judgment about what's going on until one has had a chance to hear the opinions of those one respects.

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

127. The present is all too often full of unhappiness. It is only the future that counts.

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

128. Of all the different philosophies which exist in this world there is probably one only which is correct.

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

129. The highest form of government is a democracy, and the highest form of democracy is a government run by those who are most intelligent.

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

130. The main thing in life is for a person to want to do something important.

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

131. I'd like it if I could find someone who would tell me how to solve my personal problems.

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

132. Most of the ideas which get printed nowadays aren't worth the paper they are printed on.

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

133. Man on his own is a helpless and miserable creature.

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

134. It is only when a person devotes himself to an ideal or cause that life becomes meaningful.

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

135. Most people just don't give a "dam" for others.

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

136. The United States and Russia have just about nothing in common.

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

137. In a discussion I often find it necessary to repeat myself several times to make sure I am being understood.

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

138. While I don't like to admit this even to myself, my secret ambition is to become a great man, like Einstein, or Beethoven, or Shakespeare.

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

139. Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary to restrict the freedom of certain political groups.

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

140. It is better to be a dead hero than to be a live coward.

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

141. When I have a problem I like to think it through myself first without help from others.

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

142. Everybody is responsible for his own life and no one else can live life for him, so I make my own decisions and judgments.

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

143. I go ahead and do things which I believe are right regardless of what other people think.

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

IMPORTANT

FOLLOWING ARE A SERIES OF NINE STATEMENTS DESCRIBING HOW YOUR SCHOOL PRINCIPAL MAY BEHAVE TOWARD THE OTHER TEACHERS IN THIS SCHOOL. PLEASE READ EACH STATEMENT CAREFULLY AND THEN SELECT THE ONE ALTERNATIVE WHICH BEST SUMMARIZES THE EXTENT OF YOUR AGREEMENT OR DISAGREEMENT WITH THE STATEMENT.

= = = = =

144. "The principal of this school usually doesn't explain his decisions to the other teachers even when these decisions affect them."

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

145. "The principal of this school frequently makes decisions which affect the other teachers without consulting them first."

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

146. "The principal of this school is usually very kind and understanding when he talks to the other teachers."

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

147. "The principal of this school is usually friendly and the other teachers can discuss their problems with him."

- | | |
|--------------------------|-----------------------------|
| 1. I agree very much. | 4. I disagree a little. |
| 2. I agree on the whole. | 5. I disagree on the whole. |
| 3. I agree a little. | 6. I disagree very much. |

148. "The principal of this school wants the other teachers to consider him their very good friend."

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

149. "The principal of this school associates with the other teachers even when there is no official business involved."

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

150. "The principal makes the other teachers feel relaxed when he talks to them."

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

151. "The principal of this school gives the other teachers encouragement in their work. . ."

1. Very frequently.
2. Quite frequently
3. Quite infrequently.
4. Never.

152. "The principal of this school offers the other teachers suggestions to help them improve their teaching performance."

1. Very frequently
2. Quite frequently
3. Quite infrequently
4. Never.

IMPORTANT

FOLLOWING ARE A SERIES OF NINE STATEMENTS WHICH MAY DESCRIBE HOW YOUR SCHOOL PRINCIPAL BEHAVES TOWARD YOU. PLEASE READ EACH STATEMENT CAREFULLY AND THEN SELECT THE ONE ALTERNATIVE WHICH BEST SUMMARIZES THE EXTENT OF YOUR AGREEMENT OR DISAGREEMENT WITH THE STATEMENT.

153. "My principal usually doesn't explain his decisions to me even when these decisions affect me."

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

154. "My school principal frequently makes decisions which affect me without consulting me first."

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

155. "My school principal is usually very kind and understanding when he talks to me."

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

156. "My school principal is friendly to me and I can discuss my problems with him."

- | | |
|--------------------------|-----------------------------|
| 1. I agree very much. | 4. I disagree a little. |
| 2. I agree on the whole. | 5. I disagree on the whole. |
| 3. I agree a little. | 6. I disagree very much. |

157. "My school principal likes me to consider him my very good friend."

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

158. "My school principal associates with me even when there is no official business involved."

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

159. "My school principal makes me feel relaxed when I talk to him."

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

160. "My school principal gives me encouragement in my work. . ."

1. Very frequently
2. Quite frequently
3. Quite infrequently.
4. Never

161. "My school principal offers suggestions to help me improve my teaching performance. . ."

1. Very frequently.
2. Quite frequently.
3. Quite infrequently.
4. Never

IMPORTANT

FOLLOWING ARE A SERIES OF FOUR STATEMENTS WHICH THE PRINCIPAL OF A THAI GOVERNMENT SECONDARY SCHOOL MIGHT MAKE. PLEASE READ EACH STATEMENT CAREFULLY AND THEN SELECT THE ONE ALTERNATIVE WHICH YOU THINK YOUR SCHOOL PRINCIPAL WOULD CHOOSE AS BEST SUMMARIZING THE EXTENT OF HIS (OR HER) AGREEMENT OR DISAGREEMENT WITH THE STATEMENT. PLEASE ANSWER AS YOU THINK YOUR PRINCIPAL WOULD ANSWER:

162. "Personally, I feel I can adjust to changes easily." My principal would . . .

1. agree very much
2. agree on the whole.
3. agree a little.
4. disagree a little.
5. disagree on the whole
6. disagree very much.

163. "Most changes introduced into the Thai government secondary schools within the last ten years have contributed very little to improving education in our schools." My principal would . . .

1. agree very much.
2. agree on the whole.
3. agree a little.
4. disagree a little.
5. disagree on the whole.
6. disagree very much.

164. "If we wish to maintain a healthy, stable educational system in Thailand we must keep it the way it is and resist the temptation to change." My principal would . . .

1. agree very much.
2. agree on the whole.
3. agree a little.
4. disagree a little.
5. disagree on the whole.
6. disagree very much.

165. "I really believe we could do a much better job, or at least do just as well if things didn't change so much in our schools." My principal would. . .

1. agree very much.
2. agree on the whole.
3. agree a little.
4. disagree a little
5. disagree on the whole.
6. disagree very much.

IMPORTANT

PLEASE ANSWER THE FOLLOWING FIVE QUESTIONS ON THE BASIS OF HOW YOU THINK YOUR PRINCIPAL FEELS ABOUT YOU.

166. How do you think your school principal would rate your over-all teaching ability?

1. Outstanding
2. Among the best
3. Very good
4. Above average
5. About average
6. Below average
7. Among the poorest

167. How do you think your principal would rate your ability to get along with students?

1. Outstanding
2. Among the best
3. Very good
4. Above average
5. About average
6. Below average
7. Among the poorest.

168. How do you think your principal would rate your ability to enrich instruction (go beyond the textbook)?

1. Outstanding
2. Among the best
3. Very good
4. Above average
5. About average
6. Below average
7. Among the poorest.

169. How do you think your principal would rate your methods of teaching?

1. Outstanding
2. Among the best
3. Very good
4. Above average
5. About average
6. Below average
7. Among the poorest

170. How do you think your principal would rate your methods of classroom discipline?

1. Outstanding
 2. Among the best
 3. Very good
 4. Above average
 5. About average
 6. Below average
 7. Among the poorest
-

IMPORTANT

PLEASE ANSWER THE FOLLOWING FIVE QUESTIONS ON THE BASIS OF HOW YOU THINK YOUR TEACHING COLLEAGUES FEEL ABOUT YOU.

171. How do you think your teaching colleagues in this school would rate your over-all teaching ability?

1. Outstanding
2. Among the best
3. Very good
4. Above average
5. About average
6. Below average
7. Among the poorest

172. How do you think your teaching colleagues would rate your ability to get along with students.

1. Outstanding
2. Among the best
3. Very good
4. Above average
5. About average
6. Below average
7. Among the poorest.

173. How do you think your teaching colleagues would rate your ability to enrich instruction (go beyond the textbooks)?

1. Outstanding
2. Among the best
3. Very good
4. Above average
5. About average
6. Below average
7. Among the poorest

174. How do you think your teaching colleagues would rate your methods of teaching?

- | | |
|-----------------------|-------------------|
| 1. Outstanding | 4. Above average |
| 2. Among the best | 5. Among the best |
| 3. Very good | 6. Below average |
| 7. Among the poorest. | |

175. How do you think your teaching colleagues would rate your methods of classroom discipline?

1. Outstanding
2. Among the best
3. Very good
4. Above average
5. About average
6. Below average
7. Among the poorest.

IMPORTANT

PLEASE ANSWER THE FOLLOWING FIVE QUESTIONS ON THE BASIS OF HOW YOU THINK YOUR STUDENTS FEEL ABOUT YOU.

176. How do you think your students would rate your over-all teaching ability?

1. Outstanding
2. Among the best
3. Very good
4. Above average
5. About average
6. Below average
7. Among the poorest

177. How do you think your students would rate your ability to get along with them?

1. Outstanding
2. Among the best
3. Very good
4. Above average
5. About average
6. Below average
7. Among the poorest

178. How do you think your students would rate your ability to enrich instruction (go beyond the textbook)?

1. Outstanding
2. Among the best
3. Very good
4. Above average
5. About average
6. Below average
7. Among the poorest.

179. How do you think your students would rate your methods of teaching?

1. Outstanding
2. Among the best
3. Very good
4. Above average
5. About average
6. Below average
7. Among the poorest.

180. How do you think your students would rate your methods of classroom discipline?

1. Outstanding
2. Among the best
3. Very good
4. Above average
5. About average
6. Below average
7. Among the poorest.

IMPORTANT

PLEASE ANSWER THE FOLLOWING FIVE QUESTIONS ON THE BASIS OF HOW
YOU JUDGE YOUR OWN COMPETENCE.

=====

181. Comparing yourself with your fellow teachers in this school,
how would you rate your over-all teaching ability?

1. Outstanding
2. Among the best
3. Very good
4. Above average
5. About average
6. Below average
7. Among the poorest.

182. Comparing yourself with your fellow teachers in this school,
how would you rate your ability to get along with students?

1. Outstanding
2. Among the best
3. Very good
4. Above average
5. About average
6. Below average
7. Among the poorest

183. Comparing yourself with your fellow teachers in this school,
how would you rate your ability to enrich instruction (go
beyond the textbook)?

1. Outstanding
2. Among the best
3. Very good
4. Above average
5. About average
6. Below average
7. Among the poorest.

184. Comparing yourself with your fellow teachers in this school, how would you rate your methods of teaching?

1. Outstanding
2. Among the best
3. Very good
4. Above average
5. About average
6. Below average
7. Among the poorest.

185. Comparing yourself with your fellow teachers in this school, how would you rate your methods of classroom discipline?

1. Outstanding
2. Among the best
3. Very good
4. Above average
5. About average
6. Below average
7. Among the poorest.

IMPORTANT

FOLLOWING ARE A SERIES OF NINETEEN STATEMENTS WHICH MAY DESCRIBE HOW YOU FEEL ABOUT DEALING WITH YOUR SEVERAL PERSONAL AND PROFESSIONAL MATTERS. PLEASE CIRCLE THE NUMBER PRECEDING THE RESPONSE WHICH BEST SUMMARIZES THE EXTENT OF YOUR AGREEMENT OR DISAGREEMENT WITH THE STATEMENT. PLEASE ANSWER EACH QUESTION.

186. "If the School Principal wants to get things done he should go ahead with what he thinks will benefit the school without asking the teachers."

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

187. "It really isn't the job of teachers to take part in any decision-making discussions regarding school matters."

1. I agree very much
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

188. "If we want to maintain a healthy and stable educational system in Thailand we must keep it the way it is and resist the temptation to change."

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

189. "Most changes introduced into the Thai government secondary schools within the last ten years have contributed very little to improving education in our schools."

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

190. "I really believe that we Thai government secondary school teachers could have done a much better job, or at least done just as well, if things had not been changed so much in our schools."

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little
5. I disagree on the whole.
6. I disagree very much.

191. "I think the teachers in this school get along with one another better than those in other Thai government secondary schools in this Changwad."

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

192. "I think the teachers in this school help one another more than do teachers in other government secondary schools in this Changwad."

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

193. "I feel I get along well with my teaching colleagues in this school."

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

194. "I don't feel secure and relaxed as a teacher in this school."

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

195. "I feel at home in this school and nothing makes me nervous or uneasy."

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

196. "I feel that I am really a part of this school."

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

197. "Generally speaking, I don't like being a teacher."

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

198. "I like my teaching job in this school."

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

199. "If given an opportunity to do the same kind of teaching at the same pay in another Thai government secondary school, I would teach in the other school."

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

200. "Personally, I feel I can adjust to changes easily."

1. I agree very much.
2. I agree on the whole.
3. I agree a little.
4. I disagree a little.
5. I disagree on the whole.
6. I disagree very much.

201. "Compared with most other teachers in this school, I talk with my teaching colleagues about non-academic school activities. . ."
1. much more frequently than the others.
 2. somewhat more frequently than the others.
 3. just about as often as the others.
 4. somewhat less frequently than the others.
 5. much less frequently than the others.
202. "Compared with most other teachers in this school, my school principal talks to me about my classroom work . . ."
1. much more frequently than with the others.
 2. somewhat more frequently than with the others.
 3. just about as often as with the others.
 4. somewhat less frequently than with the others.
 5. much less frequently than with the others.
203. "Compared with most other teachers in this school, my principal talks to me about discipline problems. . ."
1. much more frequently than with the others.
 2. somewhat more frequently than with the others.
 3. just about as often as with the others.
 4. somewhat less frequently than with the others.
 5. much less frequently than with the others.
204. "Compared with most other teachers in this school, my principal talks to me about the problems of teaching. . ."
1. much more frequently than with the others.
 2. somewhat more frequently than with the others.
 3. just about as often as with the others.
 4. somewhat less frequently than with the others.
 5. much less frequently than with the others.

IMPORTANT

THE REMAINING QUESTIONS ASK YOU TO PROVIDE SOME PERSONAL INFORMATION. LET US REMIND YOU AGAIN THAT YOUR NAME WILL NOT APPEAR ON THIS QUESTIONNAIRE: NO ONE WILL KNOW WHO FILLED IT OUT. WE WOULDN'T ASK YOU TO GIVE SUCH PERSONAL INFORMATION IF IT WEREN'T ESSENTIAL TO THE SUCCESS OF THIS RESEARCH PROJECT.

205. For how many years of your life have you lived in a town or city of more than 10,000 population?

1. Less than 5 years.
2. 5-10 years.
3. 11-15 years.
4. 16-20 years.
5. 21-25 years.
6. 26-30 years.
7. More than 30 years.

206. For how many years of your life have you lived in a town or city of less than 10,000 population?

1. Less than 5 years.
2. 5-10 years.
3. 11-15 years.
4. 16-20 years
5. 21-25 years.
6. 26-30 years.
7. More than 30 years.

207. What is your father's occupation?

1. Farmer
2. Professional man (doctor, dentist, lawyer)
3. Business man
4. Unskilled, semiskilled or skiller laborer
5. Civil government official
6. Member of the Army, Navy or Air Force
7. Professional educator (college) or school teacher.

208. Please circle the number preceding the highest level of formal education attained by your father.

1. No formal education
2. 1-3 years of schooling
3. 4-7 years of schooling
4. 8-10 years of schooling
5. 11-12 years of schooling
6. Some university or college education
7. College graduate.

209. Please circle the number preceding the highest level of formal education attained by your mother.

1. No formal education.
2. 1-3 years of schooling.
3. 4-7 years of schooling
4. 8-10 years of schooling
5. 11-12 years of schooling
6. Some university or college education
7. College graduate.

210. What was your government salary last month?

1. ₦ 750 or less.
2. ₦ 751-900
3. ₦ 901-1,200
4. ₦ 1,201-1,500
5. ₦ 1,501-2,050
6. ₦ 2,051-2,650
7. ₦ 2,651-3,200
8. ₦ 3,201-4,300
9. ₦ 4,301-5,200
- X ₦ 5,201-7,200
- Y. ₦ 7,201-8,000.

211. Do you own land, own a business, or have any other outside source of income besides your government salary?

0. No
1. Yes
How much was your outside income last year?
2. Less than ₦ 1,000
3. 1,000-3,000
4. 3,001-5,000
5. 5,001-7,000
6. 7,001-10,000
7. 10,001 or above

212. SEX

1. Male
2. Female

213. AGE

- | | |
|----------|----------------|
| 1. 20-24 | 6. 45-49 |
| 2. 25-29 | 7. 50-54 |
| 3. 30-34 | 8. 55-59 |
| 4. 35-39 | 9. 60 or above |
| 5. 40-44 | |

214. Please circle the numbers preceding the subjects which you now teach.

- | | |
|--|------------------|
| 1. Thai language | 10. Chemistry |
| 2. English language | 11. Biology |
| 3. Civics and Ethics | 12. Arithmetic |
| 4. Geography | 13. Algebra |
| 5. History | 14. Trigonometry |
| 6. General Science | 15. Statistics |
| 7. Mechanics | 16. French |
| 8. Heat, Light & Sound | 17. German |
| 9. Electricity & Magnetism
(Physics). | |

WE WOULD LIKE TO EXPRESS OUR SINCERE APPRECIATION FOR YOUR COOPERATION IN HELPING US WITH THIS VERY IMPORTANT RESEARCH STUDY. WE HAVE GREAT HOPE THAT THIS STUDY, TOGETHER WITH OTHERS OF A SIMILAR NATURE BEING CONDUCTED THROUGHOUT THE WORLD, WILL HELP TO IMPROVE EDUCATION IN DEVELOPING COUNTRIES. THE RESULTS OF THIS STUDY WILL BE VALID ONLY IF YOU HAVE ANSWERED EVERY QUESTION. IF YOU FAILED TO ANSWER A QUESTION, PERHAPS YOU WOULD GO BACK AND DO SO NOW. YOU MAY WRITE ANY COMMENTS WHICH YOU HAVE ABOUT THIS QUESTIONNAIRE ON THE BACK OF THIS PAGE; THEY WILL BE APPRECIATED.

