



IDRC-TS23e

**A Review of Teacher
Effectiveness Research in
Africa, India, Latin America,
Middle East, Malaysia,
Philippines, and Thailand:
Synthesis of Results**

Beatrice Avalos y Wadi Haddad

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MALAYSIA, PHILIPPINES, AND THAILAND:

Synthesis of Results

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PREFACE

This synthesis and the reviews upon which it is based were commissioned by the Educational Research Review and Advisory Group (RRAG) as part of a broader attempt to review the state of educational research as it, in turn, is related to problems of education in developing countries.¹

When the Review Group first met in May, 1977, to consider which problem should receive priority treatment, there were few areas of obvious agreement -- as to be expected, given the diverse geographic, academic, and policy-related backgrounds of those present. All members, however, were in agreement not only that teachers are a crucial and costly component of any educational system, but also that there was a need to synthesize research that focused on teachers in developing countries.

Before the global review was commissioned, an analysis was carried out of existing reviews of research on the subject in the developed world, and discussions were held with several researchers involved in work on "teacher effectiveness" in the United States and Europe. Through this the Group became aware of the plentiful but generally inconclusive research dealing with the topic that had emanated from the developed world. Moreover, it was clear that these research results derived from studies of teachers possessing at least a secondary school degree of their own, working in classrooms where textbooks and materials are available to all pupils, and instructing pupils who themselves are from homes where parents are, for the most part, literate. The 'relevance' of this research to the Third World was not obvious.

Conscious of the importance of the topic for policy decisions, and of the limitations of developed country research when applied to the Third World, in November 1977 the Review Group commissioned a number of new reviews of research dealing

1. More specifically, the Review Group, when it began its activities in 1976 funded by the International Development Research Centre (IDRC), was expected to identify advances and gaps in knowledge and to assess national and regional capacities for producing, diffusing, and using research.

with teacher effectiveness. The purpose of this undertaking was to seek out and synthesize pertinent research, using published and unpublished sources in national or regional as well as "world" languages. It was assumed that evidence not otherwise available would surface from reviews carried out by scholars working within their own countries. Seven reviews ultimately were completed, covering respectively Latin America, Sub-Saharan Africa, the Arabic-speaking Middle East and North Africa, India, Thailand, the Philippines, and Malaysia.²

Reviewers were asked to include research within their own nation or region relating teacher background or teaching variables to a desired outcome. The definition of outcomes was left open to include changes in the teaching situation itself, or changes within pupils, institutions, or communities. Studies were included if they were of a relational nature, but coverage was not restricted to correlational or experimental studies; case studies and observational studies were included.

Reviewers were requested also to go beyond reporting research results and to:

- (a) assess how well the research reviewed addressed itself to issues of concern to policy-makers in the respective areas;
- (b) comment on research methods used in the studies reviewed, and assess the reliability of the studies;
- (c) help illuminate the "process of research" by including, if at all possible, a case study of the genesis, conduct, dissemination and use of a research project included in the review; and
- (d) identify neglected areas, and suggest future lines of research.

A framework for the regional reviews was prepared by the Research Review and Advisory Group Co-ordination and subjected to discussion and revision by the full Group. It was submitted to four of the regional reviewers who, meeting in November, 1977, further discussed and reformulated it. The result was a document that set out the purposes and scope of the review and the categories within which research would be analyzed. Reviewers then set to work. An enormous debt is owed them for their perseverance. Within a relatively short span of time (3 months) they

2. The procedure contrasts markedly from that employed by the World Bank in commissioning to the Swedish Institute for International Education a "Review of Teacher Education in Developing Countries". That study was based almost exclusively on results from education production function studies and was based only on published English language materials.

had to travel, search and identify the studies; select those that met the criteria agreed upon, read, extract, and synthesize.

In the course of the search process, reviewers became aware of the lack of research networks (or the imperfect operation of those that did exist, as in Latin America). Learning about and gaining access to unpublished research was a particular challenge. Relying on informal networks provided by ex-students proved helpful in some areas (as in Thailand) but was of little use elsewhere. Coverage, although relatively thorough, may not be complete, therefore, even within the selected countries and regions.

The reviewers whose works have made this synthesis possible and the titles of their studies upon which the synthesis is based are:

Abraham Magendzo and Ricardo Hevia, Programa Interdisciplinario de Investigaciones en Educacion, Santiago, Chile.

Kachi Ozumba, West African Examinations Council, Lagos, Nigeria.

Joseph Mansour, Center for Educational Research and Development, Beirut, Lebanon.

P.N. and Jyotsna Dave, National Council of Educational Research and Training, New Delhi, India.

Chancha Suvannathat, Behavioural Science Research Institute, Srinakarinwirot University, Bangkok, Thailand.

Awang Had Salleh and team, University of Malaya, Kuala Lumpur, Malaysia.

Josefina Cortes and team at OIC, College of Education, Department of Educational Administration, University of the Philippines, Dilliman, Quezon City, Philippines.³

Results of the seven reviews are brought together in the following pages. In the first chapter a set of policy issues is elaborated, providing a background against which to view the findings. The framework that guided the reviews is presented at the outset of the second chapter and is followed by a detailed analysis and discussion of results. A summary of the analysis is presented on pages 32 to 35. Chapter III discusses institutional and methodological characteristics of the studies reviewed in each region. Chapter IV relates results to the policy issues elaborated earlier. In addition, seemingly unresearched or unanswered problems are identified and suggestions offered for lines of future research. Chapter V contrasts results from this review with those found in parallel reviews of research done in developed

3. An eighth study was conducted in Indonesia by Waskito Tjiptosasmito but revealed little in the way of relevant research.

countries. A brief summary chapter concludes the body of the work.

All tabular material is listed in Appendix I. Appendix II includes an extensive list of references taken from the seven individual reviews and a classification of studies by region in terms of the subject treated. Case studies of the genesis, conduct, and utilization of research are summarized in Appendix III. The framework for analysis of results is presented in Appendix IV in greater detail than in the body of the text.

The review, even prior to its publication, has stimulated researchers and policy-makers in several locations⁴ to take a close look at findings, to review methods, and to adjust their own research agendas. Together the review and the discussions of it have indicated the need to look behind generalities, and the desirability of ceasing to search for a single definition of the effective teacher. They have pointed to discrepancies between the research agenda set by researchers and the issues of greatest interest to practitioners. The need to rethink basic concepts and to strengthen research capacity also have become evident. It is hoped that the reader will find similar challenges in the review and will be able to use it to stimulate local discussion as well as further experimentation.

4. In the course of carrying out the reviews, meetings were held in Thailand, Malaysia and the Philippines to discuss findings and issues. In December 1978 and March 1979, the Research Review and Advisory Group co-sponsored meetings in Mexico and Nigeria (for Anglophone West Africa) in order to disseminate results and obtain reactions.

I INTRODUCTION

Defining Teacher Effectiveness

Teachers are important for both educational and economic reasons. This is especially so for developing countries where many adults remain illiterate, where educational resources such as books are in short supply, and where teachers' salaries may absorb as much as 95 per cent of the recurrent costs in a government's education budget.¹

It is relatively easy to obtain agreement that teachers are an essential part of the educational process. There is widespread conviction that the quality of an educational system will be only as high as the quality of its teachers. There is little or no agreement about what to expect from teachers, even within any one setting. Quality has meant different things at different times and expectations range over a wide spectrum.

In the past, and with varying emphases depending on the particular culture, teachers were entrusted, first and foremost, with the task of helping young people grow into the type of persons valued by the community. More instruction, personal guidance and exemplary behaviour were important parts of a teacher's role. In Thailand, for instance, the teacher was perceived as a venerable person who had to behave almost perfectly (Suvannatthath 1978). Similar expectations have prevailed in other developing countries even as they did in earlier years in Britain or the United States.

But times change and the traditional teaching roles have been modified as expectations for education systems generally have evolved. Sometimes conflicting demands have been added. In the last two decades, for instance, education has been expected increasingly to contribute to the task of building new societies which unite a variety of linguistic and ethnic groups and which are socially, culturally, and economically as independent as possible from former colonial or present economic powers.

1. Typical is the Ghanaian situation in which, in 1977, teachers' salaries accounted for 75-80 per cent of recurrent expenditures in education and the education budget was running at 25-30 per cent of the total governmental budget. Because average class size was already approximately 46, further adjustments upward did not seem possible. Under consideration was a plan (at the secondary school level) to increase the workload of teachers. (Conversation with the Director of the Budget, July 13, 1977)

One African educator has expressed the difficulties changed demands bring for teachers as follows:

"Educated and trained in a school system modelled in content on that of the colonial power, the African teacher is now called upon to perform competently under a new system which emphasizes mass rather than elitist education, secular rather than Christian, science and technology, African heritage in the name of a 'culturally relevant curriculum' and 'nationhood with its perennial search for a national language'." (Maleche 1974 quoted in Ozumba 1978)

While Indian leaders expect the educational system to contribute to national development, they expect it also to respond to the personal and social needs of children and communities. Thus, an Indian teacher must "become more than a classroom teacher" and must be "an agent of change -- community change...a liaison officer between the policy-makers on one hand and the people on the other, and he must assume the leadership" (Dave 1978).

Increasingly also, societies have begun to measure people in terms of educational certificates. To contribute to the social advancement of the students, teachers are therefore expected to help their students attain desired certification. That goal need not, but often does, conflict with moral and educational objectives.

The conflicting goals of education set for teachers complicate their job. Does a teacher respond principally to policy-makers and politicians expecting contributions to national development, or does he or she conform to parental and community wishes to provide moral instruction while promoting educational achievement? Varied expectations also make the task of defining and evaluating effective teaching difficult.

Complicating the picture even more are definitions of teaching derived from various bodies of knowledge related to education. Learning theories, socio-psychological theories of individual and group behaviour, and macro-social theories concerning the relationship of education to social development and/or to development of cultural independence -- each carry different implications for what might be considered an appropriate and "effective" teaching behaviour. Moreover, these theories are abstractions, often standing in opposition to each other and sometimes contradicting the conventional wisdom which parents and students take as their bases for setting expectations.

Faced with multiple goals of education and considering the many possible theoretical approaches to the topic, no one definition of an "effective" teacher has been adopted for this review. Rather, a decision was taken to let researchers speak for themselves. One important and interesting outcome of the review, therefore, is to discover what bases researchers have taken for their explorations of effective teaching.

Setting the Issues

From the outset, this review was intended as something more than an academic exercise. In addition to identifying advances and gaps in knowledge about the effectiveness of teachers as defined by researchers, it was hoped that research could be related directly to policy issues and concerns. But, as suggested above, governments assign varying roles to teachers. Accordingly, policy emphases vary by country. Different political, economic, and social circumstances produce a spectrum of concerns ranging from one extreme in which the teacher is considered primarily to be a "consciousness-raising" agent in support of national development to another in which teachers are to perform a strictly pedagogical role. In order not to pre-empt issues that might be important in one setting but not another, reviewers were asked to identify policy issues in their respective regions and to indicate the extent to which researchers seemed to be directing their research toward the identified issues.

As another level, and irrespective of the broad variations in definitions by policy-makers and others of what the particular roles of teachers should be, is a set of issues which virtually all policy-makers consider to be of great concern. For instance, all policy-makers must worry about the efficient utilization and development of financial and human resources within the educational system, no matter what the national or educational goals are taken to be. Similarly, all policy-makers are faced with decisions regarding the selection, training, on-the-job effectiveness, and motivation of teachers. In this synthesis, these issues will be used to organize discussion and make judgments about areas of concentration or lack of research.

Selection

How can the process of selecting teachers be improved? In some settings, this issue is of limited applicability because teachers are selected on a purely political basis. Generally, however, it is assumed that a teacher's success or failure will depend on who the teacher is and that better selection can result in better teaching. Common wisdom in the United States is that it is not who the teacher is but what he or she does that counts (Bloom 1972). Where backgrounds are relatively homogenous that may be so. But does the same apply in the Third World? Some individuals are more suited to teaching than others, but the naturally inspired and effective teacher is as rare to find as the outstanding artist. Thus, what concerns policy-makers is the selection of that large percentage who, though not artistically blessed, will carry out the teaching task in a better or worse way, depending on who they are. Clearly, personal characteristics of teachers will interact

with characteristics of pupils (age, sex, ability, socio-economic background, emotional traits and attitudes). Moreover, these interactions may be influenced by the level and type of schooling. Thus, the question, "Are there prerequisite personal characteristics for success in the teaching profession?" must be accompanied by the question, "If so, how are they different for different pupils and educational situations?" Moreover, given the peculiarities of particular teachers, one may ask how they can be helped to become more effective.

Training

In theory, a teacher's performance can be influenced by the amount and kind of training he or she receives. But how should teachers be trained to perform in different situations and for different groups? Is there a minimum level of training? Of what kind? To what end?

Governments are under constant pressure to add to the training teachers receive before entering the classroom. Perhaps the largest group in the civil service, teachers in many locations are a powerful pressure group. As more years are added, training not only becomes more expensive, but also leads to demand for higher compensation. Faced with no real alternative but to expand teacher training, governments need information linking training in its various forms to desired outcomes. They need to know what changes (cognitive, affective, moral, social) additional training of teachers produces in students or in the community (if this is considered a desired outcome).

The training issue can be broken into a number of sub-issues. The problem of selection mentioned above is related to training. What should the criteria be? Should they be the same for all levels and types of institutions? Once teachers are selected for training, what content should be given in order to develop and sustain the desired attitudes, behaviour, and substantive competence? What should the interplay of academic and professional training be to produce a knowledgeable teacher with needed pedagogical skills? Does a university degree make a difference and if so, in what teaching circumstances? What should be the duration of a training programme? Should a long initial training follow secondary or even primary education, or should an intensive but short initial period be followed by periodic inservice training? What training methods help produce the desired outcome? What should be the nature and length of practice teaching? Does inservice training have better and more lasting effects than pre-service training and under what circumstances? What should the timing of inservice training be with regard to age, experience, and previous training? How frequent should such training be? As with pre-service training, there are questions of content and teaching strategies that are adequate to produce the different

types of attitudinal, cognitive, and behavioural changes desired.

On-the-job Effectiveness

In their day-to-day activities, teachers are often faced with professional problems and intra-personal conflicts that may arise from interaction with colleagues and administrative personnel, from implementation of the curriculum, or from other features of the teaching situation or the school setting. What helps a teacher cope with these problems and hazards? What keeps up morale and motivates the teacher who is "qualified" and who has been "adequately" trained to apply his or her knowledge in the actual teaching situation? Does supervision help? Of what kind and under what conditions? How can a teacher be encouraged to innovate on his or her own? How do educational reforms, such as a major change in the language medium of instruction affect classroom teaching, and the teacher's attitude and morale?

There are a wide set of administrative and teaching arrangements under the control of policy-makers which can be changed and which, in interaction with teacher and pupil characteristics and with teaching styles, may help teachers be more productive. Class sizes can be changed. Books can be added. But what are the administrative arrangements required before a teacher can be expected to perform adequately given the variety of settings and pupils? How should time be divided among tasks to assure the proposed results? What is the effect of increasing "time on task"? What outcomes are better promoted by what teaching methods?

Another set of influences on the day-to-day performance of teachers lies primarily with the teachers themselves and provides another set of questions, some more amenable to action by policy-makers than others. How, for instance, do teachers' expectations regarding the performance of individual pupils affect pupil behaviour (cognitive and affective)? Under what circumstances? What are the policy implications?

It is often assumed that a satisfied teacher is a better teacher, leading to the question, "How can job satisfaction be enhanced?" Assuming satisfaction on the job does make a difference, a series of issues arise related to ways in which satisfaction might be improved through systems of promotion, through incentives (salaries, working conditions, social benefits), through opportunities for self-improvement and inservice training, through participation in decisions that affect the system as a whole or the particular situation of the teacher.

All of the above issues must be placed in the broader perspective of national and social changes mentioned previously. That perspective changes from place to place and over time, generating another set of

questions which, it is hoped, cross-cultural and historical research may eventually illuminate. What impact do changing ideas about development, culture and education have on teachers' behaviour and attitudes, and how do such changes affect pupil and community outcomes? What enables a teacher to remain flexible, creative and open to new developments? How do different cultures deal with the training of teachers for tasks that are performed outside the formal school system? What re-definition of the teachers' role occurs once he loses his claim to exclusiveness of the teaching task? How, over time, do changes in the percentage of female teachers in the teaching force affect the prestige of the profession, the performance of teachers, and the desired outcomes?

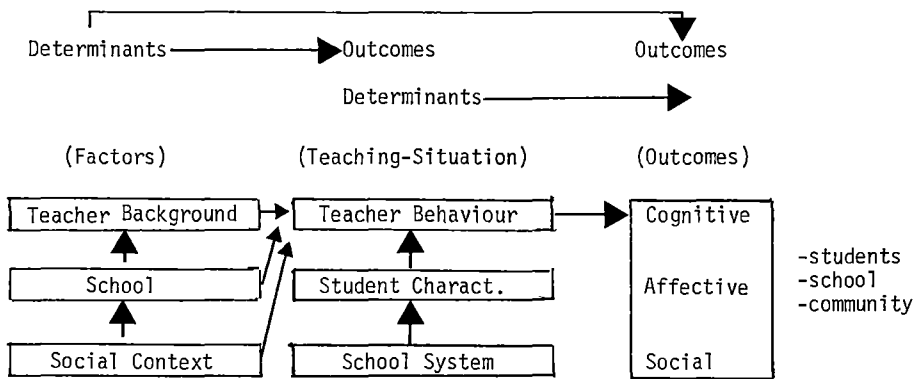
The present review will touch upon a number of the policy issues and questions raised in this section. In Chapter IV, after findings have been reviewed, they will be related explicitly to policy issues.

II ANALYSIS AND DISCUSSION OF RESULTS

The model for analysis of the research results in the regional reviews² was derived from an attempt to identify all possible teacher-related variables that might be associated with changes either in "the teaching situation" (teacher-student interaction) or in students, schools, and community.

Thus for the purpose of this synthesis it seemed convenient to group the results in the following way: (a) "Factors" (teacher background and school system variables) as they related to the "teaching situation"; (b) Teaching situation characteristics as they relate to outcomes; and (c) "Factors" as they relate to outcomes. Figure I illustrates the way in which the various sets of relationships were postulated, with effectiveness defined in terms of the association between factors (determinants) and intermediate and final outcomes.

FIGURE I
Framework for the Analysis of
Teacher Effectiveness Data



2. A more detailed explanation is found in Appendix IV.

Before looking at the results themselves, it will be useful to explain some of the terms used:

- Teacher effectiveness is loosely defined in terms of the changes which take place in the knowledge, attitudes, and behaviours of individuals and communities as a result of teacher involvement.
- Teaching situation is made up of the behavioural and attitudinal characteristics of teachers and pupils and their interaction of an educational setting.
- Factors refer to those personal and professional background conditions that a teacher brings to the teaching situation which might affect its character. They include other influences such as the school and social system, as these affect teacher characteristics.
- Outcomes are those pupil changes in achievement, attitudes, and behaviour that take place in the context of the teaching situation, as well as the institutional or community changes that are due to teacher involvement.

1. Factors as Related to the Teaching Situation

Not all the variables suggested in the framework were found to be covered by the research reviewed under this heading. For example, there were no studies that dealt with effects of the social context in which the teacher operates, except for some differences noted between teaching in rural and urban schools. Results of the available studies can thus be grouped in two sets:

- (a) Teacher factors: sex, age, personality, socio-economic status, knowledge, ability, language of instruction, attitudes, experience, qualifications, and training.
- (b) School system characteristics: location of schools, types of school management, subject matter and level taught, resources, examination system, syllabus, workload, incentives, salary, and social status of teacher.

Sex, Age, Personality, and Socio-Economic Factors

A number of studies comparing male and female teachers, for the most part in secondary schools, found that female teachers were more satisfied with their career, possessed a better attitude toward their profession, students, and school work, exhibited better mental health and suffered less from problems related to their teaching activities (Egypt, Faraj 1961; India, DPESU/NCERT 1971, Verma 1971, Jain 1971, Bhatnagar 1972, Mehrotra 1973, Mehta 1971; Thailand, Panyapinyopol 1972,

Lasarojana 1967, Pongchai 1967, Yuktabut 1967, Meekanon 1973).³ Females appeared to have a better perception of an open school climate and this in turn appeared associated with better job satisfaction (Lebanon, Raja 1975; India, Kohli 1970). Although there did not appear to be a clear relationship between sex and teaching attitudes, there was some indication that female teachers use more "modern" teaching approaches such as participatory, problem-solving methods (Chile, De Adraca 1975; Iraq, Dama'a El Baiyati 1974); and in the case of student teachers, females performed better (Thailand, Suntisukwongchote 1977). The results do not clearly affirm the superiority of female teachers as there are studies that reach inconclusive results and others that contradict the ones above. There was no research of this type in the Malaysian, Philippine or African reviews.

Not much research related age to teacher performance, but a few studies did indicate that teachers in the 30 to 40 age bracket showed greater job satisfaction than younger or older ones (Iraq, Toubase 1971; Lebanon, Raja 1975); teachers in this age bracket also appeared better adjusted, (Syria, Nashawani 1974) with a better knowledge of educational principles and a better educational attitude (Thailand, Sirinintasak 1975; Jordan, Qutami 1977). A few Indian studies pointed to a relationship of age to teaching skill (Nai, S.R. 1974, Debnath 1971, Sharma, R.A. 1966, unknown author 1966) and of younger teachers to the use of "indirect" behaviour (Malhotra 1976, Mathew 1970).⁴

By far the largest number of studies relating personality traits and needs to teacher skills and behaviour was found in India (Bhattacharya and Shah 1966, Debnath 1971, Deva 1966, Samantroy 1971, Mehta, V.B. 1971, Koul 1973, Gurubaksh 1974, Mehta, Y. 1976, Arora 1975, Malhotra 1976, Shashikala, Y.S. and Lalitha, 1978, Gowda 1974, Bano 1971, Bhatnagar 1972, Gupta, M. 1970, Gupta and Srivastava 1972, Murthi, R. 1965, Lal, K. 1969, Pandiar 1975, Nawar 1976, Agarwal 1974). The range of personality traits described is large and makes it difficult to move beyond generalizations. Relationships were reported, for example, between traits of being self-sufficient, venturesome, initiator, resourceful, outgoing, and extrovert and rated effectiveness, teaching skills, and indirect behaviour; also a relationship was noted between social and personality adjustment and rated teaching efficiency. Emotional stability and extroversion appeared related to effectiveness in these Indian studies, but this was not the case in Zambia where

3. References in this chapter are taken from the regional reviews and are found in their bibliographical listings.

4. "Indirect" is used here and elsewhere with the meaning it has in the Flanders Interaction Analysis categories of verbal behaviour.

extroversion was related to mediocrity or failure in classroom teaching of student teachers (Russel 1971). A relationship between personality traits and classroom performance was also noted in the Middle Eastern and Philippine reviews (Egypt, Daoud 1965, Agha 1976; Philippines, De la Merced 1975). De la Merced's careful study (Philippines, 1975) found "control" positively correlated with teaching attitude and absent-mindedness and tension negatively correlated; intelligence and conscientiousness positively correlated with teaching efficiency and timidity and tension negatively correlated.

Much less is said about the impact of socio-economic factors on teacher performance. There was some evidence of a relationship linking sex and SES with job satisfaction: males in the upper socio-economic groups were less satisfied than females (Lebanon, Khuri 1969). The same sort of relationship appeared with respect to perception of classroom discipline where males of the upper socio-economic groups appeared less patient than females (Lebanon, Khuri 1969). A positive relationship between socio-economic status and teaching skill was reported in India (Deva 1960, and Sharma, R.A. 1966, Pandian, C. 1977); other studies also showed a relationship between various SES indices and motivation, and a negative relationship between these indices and attitude (India, Sheth 1971). A non-significant relationship between SES factors and teacher behaviour was reported by Indian researchers (Arora 1975, Nair 1974, Shashikala, S. 1978, Upadhaya 1976, Kaur, S. 1973, Gayatri 1969, Singh, S. 1967, Sharma, S.R. 1975) and by a group of Thai researchers in respect to self-confidence in teaching on the part of student teachers (Tulatan 1973, Wongsuwan 1973, Angkanawin 1973, Tierraswaskich 1973).

Ability, Language of Instruction, and Knowledge of the Subject

Some indication of a relationship between intelligence and ratings of teacher performance was found among elementary teachers in the Philippines (De la Merced 1975, Laping 1974). Several Indian studies reported a relationship of intelligence to performance among secondary teachers (Agarwal, A. 1974, Arora 1970, Gayatri 1969, Bano 1971, Debnath 1971, Suraj 1965, Ganjoo 1965, Lal 1969), but others reported neutral findings (Deva 1966, Koul 1972, Raina 1975). Also in India, teacher aptitude was found related to teaching skills and indirect behaviour (Mehta, V. 1972, Sharma, R.E. 1966). Creative thinking and its effect upon teaching skills and indirect behaviour was examined by Gurbaksh (1974) and Mathew (1976) in India but results were inconclusive with some indication of positive effects upon indirect behaviour.

Practically nothing was found on the effects of language of instruction upon teaching behaviour, except for a couple of studies in India (both of unsatisfactory quality).

A few studies related teacher knowledge to performance. A Nigerian study found pre-service grades of secondary teachers to be related to knowledge of subject matter and educational principles but not to classroom behaviour described in terms of communication skills, promptness and attendance (Annan 1973); however, another African study did find a relationship between grades in teachers' college (among other variables) and classroom performance of elementary teachers (Kenya, Sifuna 1978), and a similar result was found in India (Sharma, R.A. 1971). A set of studies in Thailand reported a positive correlation between scholastic achievement of inservice trainees in different subjects and their ability to teach hill-tribe children (Tulatana 1973, Wongsuran 1973, Angkanawin 1973, Yanacharee 1973, Pattanawej 1973 and Tierraswaskich 1973). But another Thai study did not find any relationship of this type among English major student teachers (Pipattanont 1971). In India, there were a few studies that reported a relationship between knowledge of subject matter and teacher efficiency as rated by students (Debnath 1971, Upadhyaya 1976, Unknown author 1966, Nair, P.R. 1974, Kapruan 1974, Lal 1969, Joshi 1974, Singh Sandagar 1971, Basu, M. 1975).

Teacher Attitudes to Various Issues, Role Concept and Expectations

Teacher attitudes towards educational, political, social, and religious issues and their effect on the teaching situation was hardly looked into.⁵ Only in India were there any studies of this type. Teachers' attitudes to educational aspects dealing with teaching, teacher-pupil relationships, discipline, teachers, pupils, homework, curriculum, teaching-aids and management were found to affect classroom behaviour in relation to these aspects (Arora 1975, Samantaroy 1971, Ganjoo 1965, Kaur 1973, Singh and Sharma 1977, Malhotra 1976, Gayatri 1969, Padmini 1978).

Teacher attitudes in favour of political democracy were found related to "indirect" behaviour (India, Bhattacharya, S. and Shah 1966, Quraishi 1972), and democratic and "social" attitudes such as those termed unbiased, progressive, sympathetic and friendly were found related to teaching efficiency (India, Srivastava 1972, Gupta 1970 and Joshi 1974).

Teachers are viewed by the community in a multiplicity of roles and research confirmed this assumption (Thailand, Ngamlmaad 1975; Sierra Leone, Walker 1972, Tejan-Kella 1973, Dixon 1971, Jackson 1970; Nigeria, Ozumba 1974). Consensus on role among colleagues, students and principals was found to contribute to a teacher's job satisfaction (Nigeria, Ozumba 1974) and, in turn, role anxiety related to ineffectiveness (India,

5. See Table 14 in Appendix I.

Gurnbaksh 1974). However, with one sole exception (India, Roy 1970) in which teacher perception of himself as "director of learning" was found to be related to effective behaviour, no studies showed how differences in role perception could affect a teacher's behaviour and attitudes.

School System

The impact of the characteristics of a school system was mostly investigated in relation to teacher attitudes. It was found, for example, that the location of a school affected teacher attitude toward teaching of mathematics in elementary school (Lebanon, Zayyat 1977) and that authoritarianism was an attitude of teachers in rural areas in some Latin American settings (Ecuador, Swett 1976). It was also found that the type of school management, public and local rather than private, promoted favourable teaching attitudes (India, DPSEU-NCERT 1971); that subject matter taught affected attitude to teaching as did the school level (India, Upadaya 1976). Teachers of younger classes showed better attitudes to the teaching profession than those of higher levels (Thailand, Lasarojana 1964, Yuktabut 1967, Pongchai 1967, Radom 1968, Meekanon 1973 and Thong-Ngok 1974); the same was the case regarding attitudes toward students: the better ones were those of teachers in younger classes (Thailand, Ketawandee 1962). In the Philippines, however, teaching at this level was related to a greater number of professional-type problems (Child and Youth Centre Study 1973).

Some effect of school system variables on teacher behaviour was also reported. Location of schools was found related to practice-teaching behaviour (Kenya, Sifuna 1978) and to lesson planning in adult literacy training (Thailand, Prayoonchat 1977); in one case, practice teaching in village schools appeared more beneficial than that carried out in town schools (Thailand, Suksringarm 1978). In India, convent school teachers showed a positive relationship to most components of indirect behaviour (Rajnish 1978); headmasters did not differ in their attitude toward work-education from assistant teachers (India, Sengupta, D. 1975), type of institution was not related to job satisfaction, nor was the place of posting related to attitude toward students (India, Raju, S. 1974, Singh, A. 1978). Also in India, lack of teaching aids and library resources was linked to inefficient teacher behaviour (Arora 1975, Hemal 1968). In respect to subject taught and teacher behaviour, Malhotra (India, 1976) found that science teaching was linked to indirect behaviour while art was not; that subjects chosen by student teachers as opposed to those imposed on them produce favourable attitudes toward teaching was the conclusion of another study (India, Mehta 1972). The examination system in India was reported to be negatively related to teacher behaviour as was heavy syllabus, additional workload and lack

of teaching aids (Hemal 1968). Teacher satisfaction with the curriculum was found related to the indirectness ratio of primary teachers (Sierra Leone, Johnson 1970).

Finally, with regard to job satisfaction it was found that incentives such as recognition, advancement, and interpersonal relationships contributed highly to it, while policy and administrative factors, low salary, the nature of work, and the social status of teachers did not (Thailand, Keosai 1975). Teachers' morale, presumed to be related to leadership qualities of school principals, was found to be positively related only to principals' qualifications (Thailand, Ramaniyabul 1974).

The effect of pupil characteristics on teacher performance or attitudes was barely investigated. Only one study reported that lack of initiative to learn, together with class size and low income negatively affected teacher performance (Thailand, Panyapinyopol 1972).

Experience and Training

(a) Experience. What perhaps appears more clearly from the reviews is that there is some positive effect of length of experience upon the type of techniques used in the classroom (Thailand, Fuengvivat 1976; Iraq, Dama'a El-Baiani 1974; Sierra Leone, Johnson 1970; Ecuador, Swett 1976; India, Debnath 1971, Shashikala, S. 1978, Mehta 1971, Nair 1974, Singh, Sandagar 1971, Bhagat, R. 1969); the evidence, however, is limited and even contradictory regarding what type of techniques are associated with different levels of experience. In fact, a number of studies reviewed in the Middle East point to the use of a participatory, less authoritarian type of teaching, which includes problem-solving and discussion methods as being associated with teachers who have somewhere between 10 and 20 years of experience (Dama'a El-Baiani 1974). A similar finding is reported by Bhatnagar (India, 1972) and Johnson (Sierra Leone, 1970). Ozumba (Nigeria, 1974) also found that the same period coincides with a greater commitment to the teachers' instructional role and the tendency to follow the expectations in this regard. Beyond this period, teachers move away from their expected role (Ozumba 1974). On the other hand, the study by Swett (Ecuador, 1976) reports an association between experience of less than five years and the use of participatory and less authoritarian techniques. With regard to teacher attitudes toward students and teaching, they either do not appear related to experience at all (Lebanon, Qureshi 1974, Khokhar 1977; India, DPSEU/NCERT 1971, Raju 1974, Sharma 1968, Singh, A. 1978, Das, S. 1974), or to experience beyond 13 years (India, Mehrotra 1973). However, Gayatri (India, 1969) reported a positive relationship between maturity of experience and attitude toward students and work in the school.

(b) Training. A first question here is of the relationship between training (whether academic or professional) to teaching behaviour (attitudes, knowledge, job satisfaction, and personal adjustment, as well as teaching styles and modes of interaction). Generally speaking training does appear to make a difference with regard to some aspects of teacher behaviour. Teacher attitudes were found to be affected by training in a number of Indian studies (Mehrotra 1973, Mehta 1971, Mathew 1976, Debnath 1971, Malhotra 1976, Patel 1974), use of more authoritarian pupil control methods was reported for untrained teachers in Iraq (Touhafi 1974); in Sierra Leone training was found related to indirect style of teaching, better preparation of lessons and to the quality of professional relationships (Johnson 1970, Agard 1975).

What was not so clear was the effect of higher levels of training or qualifications, such as university versus teacher college training, or more years of study or better achievement during training. Here there are contradictory results. In one group of studies, higher qualifications appeared related to positive attitudes toward teaching (Jordan, Qutami 1977; Egypt, Mohammed 1966; Thailand, Thunthanagul 1975) and toward the profession (India, Mehrotra 1973); higher qualifications were also related to the use of various classroom techniques characterized as indirect, participatory, and employing modern aids and inquiry procedures (Chile, Schiefelbein et al. 1976; Thailand, Fuengvivat 1976, Pudpong 1973). Conversely, other studies, though recognizing the effect of training, were not able to suggest that higher qualifications or graduate training were better than lower levels of training. There was indication that if a teacher is less qualified, he or she feels happier in the profession (Iraq, Touhafi 1971; Thailand, Lasarojana 1964, Yuktabut 1967, Pongchai 1967, Radom 1968, Meekanon 1973, Thong-Ngok 1974). A few studies even pointed to no relationship between training and classroom performance (Nigeria, Nwana 1971; Jordan, Muslamani 1976; India, Arora 1975, DPESU/NCERT 1971). This finding is particularly interesting as two of the studies that support it were considered by the reviewers to be exceptionally good ones and of ample coverage (Jordan, Muslamani and India, DPESU/NCERT).

Most of the studies relating qualifications and training to teacher behaviour and attitudes were carried out at the secondary level.

Some work has been done on the effect of various methods used in pre-service teacher training. A number of these have to do with the impact of microteaching on student teacher behaviour, type of questioning, use of participatory methods, and use of visual aids. All but one report positive relationships between this type of training and classroom performance of student teachers (India, Parmeswaran 1977, Rai, S.N. 1977,

Vaze, N.A. 1976, Nair 1976, Singh, L. 1973; Thailand, Fac. Ed. Study Srinakharinwirot University 1973-1976, Usaha 1974; Malaysia, McGregor 1974, Sim 1972). One of these studies reported an interaction between experience and microteaching; student teachers who had more than one year of previous experience profited most from a sequence of microteaching followed by macroteaching (the normal teaching practice for Diploma of Education students).

The introduction of simulation techniques into teacher training was examined mainly in Thailand where several studies showed these to be superior to traditional techniques of lecture and demonstration in the use of participatory techniques and indirect behaviour as measured by Flanders' Interaction Analysis (Checkjantuck 1976, Niempradit 1976, Boonchai 1976, Poonsuvan 1976, Pitaksanurat 1976, Srivaleerat 1976). Team teaching was reported in one study to be related to indirect behaviour (India, Sharma, A.P. 1971). The use of interaction analysis in training was found related in Thailand to the development of a child-centred approach to teaching (Chariyankul 1972) and training in indirect behaviour was found to affect its use in the classroom (India, Jangira 1972, Rajivala 1975, Sing, L.P. 1973).

The effect of various feedback strategies on student-teacher behaviour was also detected in several studies. Positive attitude changes toward teaching were reported when feedback techniques had been used, such as pupils' observation and teachers' self-ratings (Thailand, Nipariyai 1974; India, Roy B. 1970).

Student teachers' personal adjustment was found related in a Philippine study to the use of preventive counselling for lessening of problems (Castillo 1973).

The relationship between inservice training experiences and teacher behaviour and attitudes was examined in a number of studies. Several of these reported a positive effect of inservice training on attitudes regarding teaching and subject-matter (Lebanon, Ali 1975, Ghunaym 1975; Philippines, Loreto 1972, Apilado 1971, UP/NSDB 1977; Peru, Barriga, in progress; Malaysia, Velappan 1977, Wona 1971). A couple of studies, on the contrary, did not support this relationship (Jordan, Billeh 1975; Lebanon, Abou Ali 1970). Another effect of inservice training seems to be in the area of subject-matter knowledge: of intermediate teachers in mathematics (Lebanon, Ghunaym 1975), in developing selected concepts in biology, chemistry, and physics (Jordan, Billeh 1975; Lebanon, Abou Ali 1970) and in physics and general science (Philippines, Loreto 1972, Apilado 1971, UP/NSDR 1977). Teaching methodologies and classroom behaviour were also found related to inservice training in several studies. In fact, when compared to teachers with only pre-service or no professional training, there was a positive effect on quality of lesson

planning and observed performance (Jordan, Rayyan 1977), on instructional skills and personal qualities (Philippines, Lumbao 1976), and on success in implementing curricular changes or reforms in the educational system (Thailand, Suchareeckul 1978; Salvador, Mayo et al. 1976). On the whole, practically all that is reported on inservice training shows a positive effect on attitudes and teacher behaviour (cf. also India, Arora 1975). However, given the number of inservice courses that have been organized in every country, some reviewers note the lack of studies on the effects of inservice training upon students, and especially of longitudinal ones that measure changes in teachers and students over a period of time. There is also not much evidence of the effectiveness of different ways of organizing inservice training or methodologies used for this purpose. An exception in this respect is a Thai study dealing with various means of performing inservice training such as studying from instructional pamphlets and listening to or rating audio-tape models (Chewpreecha 1977).

2. The Teaching Situation as Related to Outcomes

Although the framework suggested a number of teaching situation variables that might affect pupil or community outcomes, the research reviewed centred only on a few: teaching styles or methods, teacher expectations, language of instruction, and effects of social and school system variables. There was practically nothing on the effects of pupil characteristics on the teaching situation and its outcomes, although several reviews reported studies on pupil characteristics per se.

Teaching Methods

The majority of the studies under this category dealt with the comparative effects of the discovery/inquiry method and the expository (sometimes labelled conventional) method. Operationally there is a variety of definitions of treatments and characteristics of instruments for the measurement of their effects. Nevertheless, there seems to be a general trend to which these studies point: while there is no significant difference in the effects of the two types of methods on student achievement on the knowledge (and sometimes comprehension) level, the discovery/inquiry method seems to be superior at the higher levels of cognitive skills. Details appear in the summary Table 1.

The interaction between cognitive styles of pupils, teacher method, and performance on tests of recall, comprehension, and application was measured by Kazembe (Rhodesia, 1973). He found that with a guided discovery method pupil cognitive styles were a significant factor on recall and comprehension. Analytic pupils did better than non-analytic ones.

Along similar lines, two studies compared inductive versus deductive methods (Iraq, El-Sayed 1969 and Malaysia, Lim 1976) and reported no significant difference in achievement. However, Lim indicated that the inductive approach seemed to have a positive effect on the pupils' cognitive style in dealing with high order thinking activities.

There were also attempts to compare a "meaningful" method (teaching for understanding) with a "mechanical" method (role, convention). Ali (Jordan, 1966) found that teaching for understanding is more effective for problem-solving in arithmetic at the 5th grade level. Similarly, Abdul-Malik (Egypt, 1966) reported that teaching for understanding in logic is superior in developing scientific attitudes and critical thinking. Ibe (Philippines, 1965) observed that the mechanical method was superior in immediate achievement while the "meaningful" method was better for retention.

There were also related studies: Patel, C. (India, 1971) found that the project method is significantly more effective in the acquisition of language skills among students with high IQ, and Sagrasania (India, 1971) reached the same conclusion for social studies and work habits. Gill and Prema K. (India, 1967 and 1969) also found that the activity method improved achievement in languages and science while Joseph (India, 1971) reported for science that the type of activity, whether laboratory or demonstration, has no effect on knowledge, comprehension or application. Its only effect, as one expects, was on skill development. On the other hand, Orbeta (Philippines, 1973) found that the open laboratory was superior to the structured laboratory in developing critical thinking. Misha, J. (India, 1975) reported that the creative-based method improved ability to solve problems, to reason, and to comprehend.

Other methods compared were (a) lecture-problem-solving versus question-answer-problem-solving (India, Padma 1976) with no significant difference in achievement in physics; (b) objective-based versus conventional method with a gain in achievement in favour of the former at the lower taxonomic levels but only limited effect to stimulate and develop higher mental processes (India, Dave 1976); this study was carried out in physics, while a former one by the same author (1974) found that an objective-based course destined to improve language skills not only contributed to acquisition of such skills, but affected overall academic achievement of the students involved; (c) cooperatively structured versus competitively structured mathematics teaching -- the former leading to better affective but not cognitive outcomes (Malaysia, Rahimah 1977); (d) individualized versus group instruction in physics, significantly different in favour of the first (Philippines, Mones 1976) and (e) community resources versus conventional method in home economics

leading to significant gain (Philippines, De Leon 1971).

A number of studies attempted to investigate the comparative effect of programmed instruction on achievement. In the studies that Dave reviewed, three indicated an effect of programmed instruction upon pupil achievement in algebra (Sharma, M.M. 1966, State Institute of Education 1970, Shah 1969), one in geography (Sharma, R.A. 1966) and five others in different subjects (State Institute of Education 1970, Desai 1966, Nagar 1971, Sharma M. 1975, Chitnis 1972). In Malaysia, Ellson (1973) and Koh (1978) found programmed instruction effective when used as a supplement to the teacher. Similar results were reached by Ling (1967).

Studies on the effect of audio-visual materials and techniques are scattered and fragmented. At the preschool level, Chuenpattanapang (Thailand, 1972) compared a multimedia approach with the conventional approach and found that concept formation negatively correlated with reading ability of the experimental group while no such correlation existed for the control group. Kongcharden (Thailand, 1972) studied the effect of 3-D objects on preprimary pupils and found that it makes a significant difference in categorical style scores, but no difference in other cognitive style scores. Jamrerckjang (Thailand, 1974) also compared video-teaching and film-loops with live-teaching and found no significant difference due to method. Kaligaperumal, M. (India, 1971) compared filmstrip effect with conventional teaching and found a positive gain in knowledge of geography but no difference in skills.

A number of studies compared different specialized methods of teaching languages, but they are language-specific, and cannot be synthesized (Iraq, Mahdi 1976 and El-Janabi 1977; Philippines, Arabit 1966, Sukudum 1974; India, Shastri, S. no date, and Alam N. 1975, Singh, T. 1972; Malaysia, Atan 1967).

Modes of Interaction

Results here are mixed. On the one hand, a number of studies carried out in Latin America indicate that a democratic or permissive attitude of teachers is associated with positive student achievement and a smaller incidence in school retardation (Ecuador, Swett 1967; Paraguay, Rivarola and Corvalan 1976). In Thailand (Posuwan 1975, Nivasbutr 1975, Prasitporn 1975, Tongsin 1975) it was found that a democratic attitude stimulated creative thinking. With regard to "indirect" versus "direct" mode of interaction, Kilani (Jordan, 1976) found that students taught by the "indirect" approach achieved significantly better than those taught by the "direct" approach. However, in India there were less clear results. Only two studies considered to be reliable were found, both of them at the primary level, and they indicated a positive relationship

between components of indirect behaviour and achievement in geography (Lulla, T.P. 1974) and physics (Raijiwala, B.C. 1975). The Indian reviewer considered nevertheless that the finding was not decisive, as other, although less reliable studies (M.Ed. theses), indicated a balance between positive and neutral relationships regarding effects of indirect teaching over secondary school achievement in science, maths and physics. Likewise, although detecting a trend toward association between achievement and socio-linguistic interaction, Celia Agudo de Corsico was not able to support the hypothesis of this association (Argentina, 1974). Studies by Njoroge (1971) and Johnson (1969) in Sierra Leone, Mbise (1976) in Tanzania, and Suriyawong (1973) in Thailand found that no significant relationship existed between the mode of interaction and pupils' achievement.

Four studies on motivation indicated a positive effect on pupil achievement. Ipaye (Nigeria, 1976) found that although praise was not superior to blame, it was better than vicarious reinforcement (such as ignoring) on student achievement. In a similar study, Bello (Nigeria, 1978) found a positive relationship between praise and performance of Nigerian primary pupils in spelling tasks. Falomo (Nigeria, 1976) also examined the effect of the most preferred (public acclaim) and least preferred (physical contact) reinforcers on task performance in arithmetic. She found a significant difference between the two types and differences between reinforcement (either type) and no reinforcement, always in favour of the former. El-Naib (Iraq, 1968) found that the effect of praise or blame on achievement of primary school pupils was conditioned by the extraversion-introversion personality trait of the pupils.

A carefully designed study by Sabado (Philippines 1975) investigated the effects of knowledge of results and token reinforcement of mathematics achievement of high, middle, and low ability primary children. Best results were obtained by the group given immediate feedback followed by the group with immediate feedback plus token reinforcement. Ojena (Philippines, 1978) reached the same results with secondary school children.

An important number of studies done in India, all well designed and with careful operational definitions, investigated the effects of different types of questioning techniques such as question-answer-feedback-problem-solving approach, divergent-evaluative questioning, broad questions with feedback, narrow questions with feedback, upon achievement (Nair, P.R. 1976, Padma, M.S. 1976, Padmini, M.A. 1978 and Roka, S.D. 1976). In a total of eighty-five relationships reported, only fifteen at the primary level and six at the secondary level were positive, while seventy were neutral. The regional reviewer's conclusion is that these results at least raise

doubts about techniques widely acclaimed as efficient, and indicate the need for further research on questioning.

Teacher Expectations

Studies dealing with the effect of teacher expectations on student outcomes point in the direction of the subjective or pre-judging attitude which teachers may evidence and which contribute to promote or fail a student. A study carried out in Brazil (MEC, INEP, CPBE 1971) shows that the previous knowledge that teachers have about the degree of immaturity of their students negatively affects their promotion. Similarly, Bravo and Salas (Chile, 1976) found a close correlation between teachers' subjective evaluation of pupil intelligence and the number of failures. In addition, teachers' opinion about parents (projected on students and vice versa) was found to affect students' failure. Similar results were arrived at by Barreto (Brazil, 1975) and Babini (Argentina, 1973). Project SOUTELE (1976) in the Philippines found some links between positive teacher expectations and student achievement. Walker (Philippines, 1975) arrived at similar results. In Malaysia, Chiam (1976) observed an effect of teacher positive evaluation upon the students' academic self-concept which in turn was found to have effect upon achievement.

Language of Instruction

Few studies investigated the effects of language. In the Philippines when English was compared with Tagalog in terms of mathematics achievement in grades 2 and 4, there was a slight but nonsignificant difference in the rural schools (Russell 1967). Guzman (1972) found that the acquisition of mathematics concepts and proficiency in grade 2 were not affected by language of instruction, and Villanueva-Logan (1977) found a nonsignificant difference in scores of second year high school students in English and Tagalog versions of a mathematics test. A set of well designed independent studies carried out by Tuy, Mogo, Esclaban and Santos (1977) investigated the effects of Pilipino and English in the teaching of science and social studies in grades 1, 3 and 5 and first year high school. Results showed equal effectiveness of both languages in science and a definite advantage of Pilipino in social studies. In his study of Ugandan schools, Heyneman (1976) found that fluency in language spoken by the teacher was related to achievement.

Social and School System Factors

One study (India, Valand 1973) reported a positive relationship between the possession of aesthetic and political values by teachers and the popularity of these teachers among pupils.

Few studies tried to investigate the relationship between school structure (administrative and organizational) and student outcomes. Fonseca (Brazil 1974), found a positive association of student achievement and class atmosphere with "school tradition" (internal regulations, administrative problems, discipline, etc.) but no association with school bureaucracy or status of school personnel. Pillai (India, 1966) found significant interaction between administrative-organizational and social-educational student environment variables in their effect on student achievement. Banerjee in India (1977) also found the Basic Type of secondary school better than the Non-Basic for promoting achievement in several school subjects. Lulla (India, 1966) found that narrow and subjective examinations were associated with backwardness.

Studies dealing with the effect of teaching-job conditions on student achievement are scattered and piecemeal. Swett (Ecuador, 1967) reported a positive relationship between student/teacher ratio and student achievement in the first grade and a negative relationship in the sixth grade. He also found a significant correlation between student/teacher ratio and years of experience as well as between student/teacher ratio and school slowness. This led him to conclude that achievement may not actually be related to student/teacher ratio but to those other factors. The ECIEL study in Latin America also showed an absence of statistical association between achievement and student/teacher ratio except for students of low SES who did better in small classes (Moura Castro 1977). Juriah (Malaysia, 1973) found a positive relationship between lighter teaching load and student achievement, while Fonseca (Brazil, 1974) found that the standard of living of teachers and the stability of school contracts contributed positively but not strongly to student achievement. Lulla et al. (India, 1966) reported that the transfer of teachers had a negative effect on the achievement of students, that larger class-size and outdated syllabae were related to backwardness in mathematics at the primary level and the unplanned curricula was related to overall backwardness.

Only three studies dealt with the relationship between school resources and student achievement. Isahak (Malaysia, 1977) found that such a relationship was small, while Dhian Chand and Lulla et al. (India, 1970 and 1966) found that lack of facilities, teaching materials and reference books contributed negatively to student achievement.

3. Factors as Related to Outcomes

Most of these studies related teacher background factors to pupil cognitive outcomes. They include studies dealing with personal characteristics of teachers (sex, age, personality, SES), and characteristics

of training, qualifications and experience.

In two studies dealing with personal characteristics of the teacher and student achievement, no significant relationships were reported (Kenya, Sifuna 1978 and Uganda, Heyneman 1976). However, an Indonesian study reported that female teachers produce higher achievement at grade 6 level (Ministry of Education and Culture 1978). Likewise, Dave reported for India that female teachers were more effective in promoting pupil gains and that a positive relationship exists between student achievement and age of teacher. Dave also reported that personality factors such as emotional stability (Chayya 1974) and popularity (Koul 1972) have a positive effect on achievement while authoritarianism and extravertism (Chayya 1974) have a negative effect. Similarly, desirable personality traits have a positive effect on student attitudes (India, Koul 1972, Kulandaivel 1966) and on student acceptance of teachers (Koul 1972). Musa (Egypt, 1976) also indicated the following relationship between personality traits and student achievement:

- negative relationship between: (a) teachers' ascendancy and (b) sociability and female student achievement;
- positive relationship between: (a) teacher responsibility and (b) emotional stability and male student achievement;
- certain personality traits (emotional stability, extraversion, calmness, forgiveness) relate positively to student achievement.

Regarding socio-economic status of teachers, it was reported by Magendzo and Hevia (1978) that standard of living and stability of school contract of teachers are weakly associated with student achievement in certain subjects (mother tongue, social studies, mathematics) and that teachers of higher social background tend to get higher achievement of both high and low social status.

Teacher Qualification Variables

The relationship between student performance and teacher qualifications was investigated in a number of studies mainly in terms of the following qualification variables: teacher educational attainment and knowledge (level of qualification), training (credentials and certification), inservice training and teaching experience. For details of the studies dealing with level of qualifications and training, see summary Table 2.

As regards teacher educational attainment and knowledge (level of qualification), most studies indicated a differential association with student achievement. Beebout (Malaysia, 1972) found a positive correlation between the percentage of graduate secondary school teachers and student academic achievement. He further found that increasing the percentage of teachers with higher educational qualifications has a strong positive effect on student achievement in schools with inexperienced teaching staff

but does not seem to have an effect in schools with experienced teaching staff. Similarly, Juriah (Malaysia, 1973) found that graduate teachers are associated with better secondary pupil performance in Bahasa Malaysia. Dhian Chand (India, 1970) also reported a positive relationship between teacher qualifications and pupil academic achievement at both primary and secondary levels. The Bangkok Institute for Child Study also reported that teacher qualifications are positively related to primary school achievement in grades 1-4. The same trend is supported by two studies conducted in the Philippines. Vallente (1976) found a positive relationship between units in science and mathematics taken by physics teachers and student achievement in physics. However, units earned in chemistry and general science did have a positive but statistically nonsignificant correlation with student physics grades. Barsaga (1977) found that the proportion of teachers with graduate training, teaching experience, and teacher salary correlated significantly with the performance of students at the National College Entrance Examination. But with step-wise regression on all student community and school variables only teachers with graduate units were related to NCEE scores. There were, however, other studies that indicated no significant relationship between teacher qualifications and student performance. Isahak (Malaysia, 1977) found that median teacher professional qualifications are not significantly correlated with achievement of pupils at the primary level. Similarly, Sifuna (Kenya, 1978) and Heyneman (Uganda, 1976) found that there was no significant relationship between the degree of schooling of teachers or the performance in academic and educational subjects and achievement of primary school pupils. Zeidan (Egypt, 1976) also found that no sharp differences existed between achievement of classes taught by university graduates and those taught by graduates of teacher training colleges.

Studies conducted in Latin America ended with apparently contradictory results: the relationship between the teacher qualification variable and student achievement variables was negative in grade 1, positive in grades 4, 6, and 8 and neutral in the last grade of secondary school. This could mean that the teacher qualification variable has a differential effect depending on the grade concerned (Brazil, Ferrari 1973; cf. also Bangkok Institute for child Study 1973 and 1976). It also partially supports the hypothesis that if the teacher-student bond weakens along the school cycle, the teacher qualification variable fails to stay as a determinant of educational performance at the end of secondary school (Paraguay, Rivarola and Corvalan 1976).

There were few studies that specifically related teachers' knowledge to student performance. While Lulla et al. (India, 1966) reported that inadequate knowledge of teachers was responsible for pupil backwardness

in mathematics, Lim (Malaysia, 1976) found a nonsignificant relationship between teachers' level of science degree and knowledge of science processes and levels of pupil achievement in physics. Similarly, Mahmud (1970) found that the conceptual and factual knowledge of science of Pakistani teachers did not have much bearing on the knowledge of their students. It is most likely that such results may be attributable to the existence of a bracket of knowledge teachers must possess, below or above which a significant relationship does not hold.

The next qualification variable is teacher training (credentials and certification). Beebout (Malaysia, 1972) found a negative relationship between student achievement scores and percentage of untrained teachers in a school (less or more than 10%). It was also pointed out that moving a school from the lower to the upper achievement group by "elimination of untrained teachers" amounts to about 8.8% increase in the per student cost of upper secondary education for the Malay medium schools. Attar (Iraq, 1975) also found that the achievement of students whose teachers had pre-service training was higher in chemistry and biology than the achievement of students whose teachers had no training. However, pre-service training made no difference in student achievement in physics. In a third study reported by Ellson (Malaysia, 1973) "unqualified" teachers used conventional methods of instruction. Results in student achievement were significantly different in favour of unqualified teachers. The design of the study, however, raises questions about the interpretation of results as to whether they reflect an effect of teacher variables, a method of instruction variable, or an interaction of both. Another study by Raijiwala (India, 1975) showed better achievement in physics of secondary students when taught by trained teachers as compared to teachers without specialized training.

The only study that considered effects of training experiences upon student achievement was a particularly good experimental study carried out in Nigeria (Madike 1976). This study indicated that use of microteaching in training significantly affected teaching results as far as the achievement of students in mathematics and their participation in classroom activities was concerned.

The third qualification variable concerns teacher upgrading, i.e. the effect of inservice training. Considering the large number of upgrading programmes taking place in many countries, the human and financial resources involved and the reliance of success of educational reforms on such programmes, it is rather disappointing to find very few studies relating this variable to student outcomes. A study in the Philippines (UP/NSDB 1977) dealing with the effects of inservice summer science institutes on students taught by trained teachers showed

significantly higher scores in physics, chemistry, and mathematics, as well as significant improvements in attitudes toward science. Wahib (Iraq, 1977), investigating the effect of inservice training on fifth grade student achievement, found that the effect is not significant in mathematics, nor on the knowledge level in science, but significant at both the comprehension and application levels in science. On the other hand, Schiefelbein and Farrel (Chile, 1971) found a negative correlation between attendance of inservice courses and student performance in Spanish and mathematics in the eighth grade. In another study in progress, Schiefelbein and Farrel (Chile) analyzed the variables that discriminated among those 8th grade students as to reaching the last year of secondary school. The variable "inservice training" was 10th in importance among over one hundred variables, but it was the 6th in significance for students of high socio-economic status. Barriga (Peru, 1973-1975) showed that while inservice training affects teachers' knowledge, it does not affect the students' learning outcomes. These contradictory results raise many questions regarding the objectives of inservice training, the optimum time needed for a possible effect to reach the student level, and the measurement of student outcomes.

The effects of a short task-oriented training programme in the mother tongue, with emphasis on specific objectives and detailed activities was investigated by Dave (India, 1974). He found that compared to untrained teachers, trained ones produced improvement in pupils' language skills that affected overall achievement. A similar study was carried out with physics teachers resulting in improved pupil achievement in recognition and recall, and to a limited extent, in higher mental processes (Dave 1976).

Concerning the relation between teacher experience and student performance, Magenzo and Hevia isolated eleven relations between these variables, found in Latin American studies. There were five positive, three neutral and four negative ones. The results showed a trend of association that did not stay linear in all grades and all areas of knowledge. In the early primary grades, there seemed to be a rather negative relation due to a promotion policy of more efficient teachers to higher grades (Ecuador, Swett 1967). Toward the latter primary grades, the relation became constantly positive for the mother tongue, science, and mathematics. Towards the end of secondary school, teacher experience seemed to have a differential influence upon achievement in different knowledge areas. While the relationship remained positive in the field of natural science, it became neutral in the mother tongue considering the cultural and extra-scholastic influences on the student. Studies in Malaysia concentrated on the secondary level with contradictory

results due possibly to the differential influence of teacher experience. While Juriah (1973) found a negative relation in Bahasa Malaysia, Lim (1976) reported a nonsignificant relation of teacher experience with overall achievement, while Beebout (1972) reported a positive relationship as well as a significant interaction between teacher experience and qualification in the sense that as qualification increases the importance of experience decreases.

4. Summary and Discussion

Keeping in mind the difficulties of synthesizing on the basis of results that are somewhat scattered, and of drawing conclusions from studies so diverse in methods and circumstances, some coincidental lines can be detected.

The bulk of the research reviewed related various teacher background and contextual variables (factors) to the teaching situation (teacher attitudes and classroom behaviour). But the number of studies that looked at background and contextual variables in relation to outcomes, or to the teaching situation in its relation to outcomes was much more reduced; further, the majority of these studies considered only pupil cognitive outcomes. There were hardly any studies that related teacher factors and characteristics of the teaching situation to changes in pupil attitudes, or to institutional and community changes. With the exception of a few Indian studies, hardly any research was found that looked at the interaction between student and teacher characteristics and its effect upon pupil achievement and attitudes. All studies assumed relationships to be unidirectional, from teacher to pupils, as well as linear.

Within this restricted framework, some results appear similar in the different reviews. Among the teacher factors found to have some effect upon pupil cognitive changes, were training and certification (see Table 2). Two well designed and careful studies, one at the secondary level and the other at the primary level, indicated a positive effect of training over student achievement (Malaysia, Beebout 1972; India, Rajiwala 1975); although for primary achievement in reading Ellson (Malaysia, 1973) indicated a negative relationship. Training was also found to be important in producing teacher behavioural changes assumed or empirically attested to be positively related to achievement: use by the teacher of "participatory", "indirect", and "modern inquiry" approaches to teaching, and improvement of teaching skills (e.g. the studies of Schiefelbein et al. Chile, 1976; Paraguay, Rivarola and Corvalan 1976, and a number of studies in Thailand, India, and Jordan).

The effect of higher qualifications (university graduates versus teacher college certificates, or number of years of study) was not clear. Three studies considered by the reviewers to be of quality reported an effect of higher qualifications upon achievement of primary children (Thailand, Bangkok Institute for Child Study 1968) and of secondary students (Philippines, Barsaga 1977; Malaysia, Beebout 1972). Less reliable studies in India, the Philippines, and Malaysia also supported these findings. However, three other equally well designed studies did not agree with the above finding of an effect of higher qualifications upon achievement of primary children, reporting either neutral or negative relationships (Malaysia, Isahak 1977; Kenya, Sifuna 1978; Uganda, Heyneman 1976).

Results of Latin American research (all of reasonably good quality) dealing with this variable, showed a non-linear type of relationship: negative in the first year of primary school, positive in the upper levels, but ceasing to have an effect toward the end of secondary school (Brazil, Ferrari 1973; Chile, Schiefelbein and Farrel 1970; Paraguay, Rivarola and Corvalan 1976).

On the basis of these results, it does not seem reasonable to conclude that training has no effect upon achievement, although it is not clear that increasing the level of qualifications will produce better results. It is obvious from the results that other factors interact with level of qualification to produce differential results; for example, experience as shown in Beebout's study in Malaysia, or school level (possibly different pupil characteristics at different levels) as shown in the Latin American studies. Higher qualifications may produce a higher level of aspiration in teachers that is not met by the existing system of incentives or the social prestige of the profession; this may contribute, as indicated in some of the research reviewed, to job dissatisfaction and to poor teaching attitudes which in turn affect teaching styles and classroom behaviour, and possibly student achievement.

It seems that this area of training and of the optimum level of qualification effects needs much more research before conclusions in any direction can be established.

Some methods of teacher training appeared consistently effective in promoting changes in teaching techniques. Microteaching and simulation, role-playing, and case studies affected positively the use of participatory, discovery methods and the use of "modern" aids for teaching (audio-visual and other techniques). Interaction analysis used in training affected an "indirect" mode of interaction in the classroom. These findings were supported, among others, by three good studies in Thailand (Faculty of Education, Srinakharinwirot University 1973-1976), India

(Nair 1977) and Nigeria (Madike 1976). This latter study reported effects of microteaching in training not only on teacher behaviour but also on student achievement.

With regard to the type of teachers that are better adjusted and more job-satisfied, a number of studies in India, Egypt, and Thailand found females superior and the optimum age bracket to be between 30 and 40 years old. The Indian and Thai studies were considered by the reviewers to be reliable and well-designed. Females also were found superior with regard to pupil cognitive outcomes in some of these studies. Experience of between 10 and 20 years appeared associated with use of less authoritarian, and more discovery type of classroom techniques (in Latin America the optimum time was less than five years of experience). Findings about the effect of socio-economic factors were contradictory, although some studies linked higher SES to more job dissatisfaction and poor teaching attitudes -- a logical finding if one considers that teaching is, in most cases, a low prestige occupation.

Teacher personality was a subject of considerable and qualitatively good research in India, and results clearly indicated that personality was related to both teacher classroom performance and student achievement. Studies in Africa, Egypt and the Philippines supported these findings. The results, however, referred to such a variety of personality traits that it is difficult to establish the type of personality best suited for achieving educational objectives. Some indications point to authoritarianism as related negatively to achievement, and teacher responsibility, emotional stability, and extraversion as related positively to teaching skill and pupil achievement; extraversion, however, was found to be negatively related to teaching behaviour in Zambia and to achievement in India. This may be explained by the cultural characteristics of the particular settings.

On teacher attitudes, there was evidence from the Indian research of their relationship to classroom behaviour, especially those attitudes regarding educational and social issues. There was also a considerable amount of research dealing with factors that influence teacher educational attitudes towards teaching, students, homework, curriculum, etc. Some of these were found to be administrative arrangements in the system (type of school management, location of schools, level taught). Some were related to personal characteristics such as experience and personality, and some to training. Among teacher attitudes, an important set of findings related to teacher expectations of students. Several studies pointed to the negative effect upon achievement of pre-judgment of students, previous knowledge of their ability, subjective evaluation of their intelligence, and other similar evaluations.

Turning to classroom activities an important finding referred to the effect of certain approaches to teaching. The discovery/inquiry method, similar in its basic approach to inductive methods and other activity-based techniques, proved in most cases to be superior in promoting higher levels of cognitive skills: comprehension (in some cases), thinking skills, divergent-creative thinking, and application of knowledge. It was also related to attitudes such as responsibility, leadership characteristics, and scientific attitudes. It is true that in each study, the concepts, research designs, and methods of data analysis were different; nevertheless, there was also a remarkable coincidence in their results. The majority of the studies that supported these findings (as seen in Table 1) were experimental, some of which were considered to be of very good quality. On lower levels of cognitive achievement, teaching through behavioural objectives was found to have an effect. Regarding other methods, the results are scattered.

On modes of interaction in the classroom, most of the studies compared authoritarian, directive types with democratic, "indirect" attitudes, often using the Flanders' Interaction Analysis procedures. The results were not clear. While in several Latin American, Jordanian and to a limited extent Indian studies, the "indirect" mode was related to achievement, that was not the case in a group of African and Thai studies. In this connection it probably would be important to study the interaction between cultural variables (differences in child-rearing and human relations, school mores and traditions) and characteristics of classroom interaction as indicated through simple observational techniques.

Not many results were reported on other classroom variables such as teacher/student ratio and teaching resources, and no important trends were detected. The effect of language of instruction, a very important subject of current discussion, did not receive much light from the research reviewed. Except for studies in the Philippines and Uganda there was nothing else reported.

In sum, the results point to a possible interaction of some teacher characteristics and teacher behaviour, that in turn produce or may produce achievement effects on pupils. These characteristics are sex, personality, SES, an optimum age and experience range; all affecting a greater or lesser commitment to and satisfaction with the profession and the use of classroom techniques and modes of interaction found to be effective in specific circumstances. Among such techniques, the most notable finding was of the effect of discovery learning on higher levels of cognitive outcomes. Qualifications and training, contrary to existing pessimism are related to teacher behaviour and pupil achievement, although it is not known how permanent this effect is nor what the optimum levels of qualifications are.

III METHODOLOGY

From the individual reviews, it is possible to detect different research emphases. The Latin American review for the most part identified education production-function studies, a number of which form part of a Latin American project on education and economic development sponsored by ECIEL (a network of institutions of research in economics). Little classroom research was reviewed. On the other hand, the Thai review selected 219 studies most of which were surveys or experiments dealing with teacher classroom behaviour and attitudes, and with the effect of these upon pupil outcomes. The situation was similar in the Philippine review. Research in Africa was scarce and mostly surveyed the relationships between teacher characteristics and teaching behaviour, without always linking these to pupil achievement. The Middle East review found most of the studies heavily weighted toward surveys or quasi-experiments dealing with the relationship between factors (teacher characteristics and social background) and the teaching situation, or between this situation and student outcomes. The Malaysian review in turn found that most of the studies related factors to pupil outcomes. Few researchers examined the teaching situation itself. The Indian review uncovered probably the greatest variety of studies, (in design and content) although most of them were Master and Ph.D. theses.

The process of search served to illustrate various characteristics of the research groups in the regions. While a number of well-established independent educational research institutions dating from the late sixties exist in most Latin American countries, the bulk of teacher-related research in Thailand and Malaysia was done at universities by Ph.D. and M.Ed. candidates. The case was very similar in the Middle Eastern countries and in Africa (see Table 3).

Most of the Master and Bachelor of Education theses reviewed in both Thailand and Malaysia had been carried out at a couple of universities.

The Ph.D. theses in the Malaysian review had been done in American universities, while the majority of those in other countries came from local universities.

The type of research design used in the different regions is indicated in Table 4. The number of observational studies as can be seen, is very small, while surveys are the preferred design.

Samples and sampling procedures vary a great deal. The bulk of non-random sampling studies were, of course, the quasi-experimental ones in the Middle-East, and the few observation studies reported. In most cases, samples were drawn from elementary and secondary student population, around the areas of location of the university departments sponsoring the theses. In the case of the Indian review, most of the teacher samples were drawn from student-teacher populations.

On the choice of problem and research models, most of the reviewers reported their dissatisfaction with the fact that these tended to reproduce the problems and models of developed countries, where teaching is essentially considered as an in-school activity.

This dissatisfaction was also recorded in respect to the type of instruments used. Ozumba, for example, considered that, although classroom observation is a promising approach for African teacher-related research, techniques such as the Flanders' Interaction Analysis have assumptions that should be questioned. Dave equally criticized the indiscriminate use in India of concepts such as McClelland and Atkinson's Achievement Orientation, and of techniques and models such as Flanders' Interaction Analysis and microteaching. The critique of foreign models was equally voiced by Chancha Suvannathat and by Mansour in respect to their regions (Thailand and the Arab Middle East).

Most of the instruments used in the surveys were in the form of questionnaires and attitude rating scales (especially in the Philippines, India, and the Middle East). The Minnesota Teacher Attitude Scale was widely used, as indicated by several reviewers. Achievement was measured for the most part by classroom tests and results of national examinations. In the case of India, Dave reported generalized use of paper-and-pencil tests. Chancha Suvannathat commented on what she called "common-sense" measurement instruments in use in early research in Thailand, and Magendzo reported that the adaptation of the Kerlinger Attitude scale which was used in several Latin American studies had not been sufficiently validated.

Statistical techniques of analysis ranged from simple methods of correlation to covariance and other multivariate techniques. The less sophisticated techniques were reported for Africa (where the analyses were mostly bivariate); the Thai and Philippine reviewers were critical of the lack of power and adequacy of the techniques used in their countries. Even in Latin America where the more sophisticated Production-Function type of research was reviewed, there were only two studies that used techniques such as factor analysis. Table 5 illustrates what the situation is in this respect in three different regions.

On the whole, there were very few studies that moved away from the survey and experimental designs, and with the exception of the Malaysian ones, most studies hardly made use of multivariate techniques, thus hindering the analysis of interaction effects.

A final word should be said about the variables themselves. Several reviewers voiced concern about their inadequate formulation of variables (Thailand), about the fact that they represented global concepts, about the need for analysis of factors (Middle East), and most important, about their limitations. In fact, as Magendzo and Hevia stated, only cognitive outcome variables were considered, while affective, social or other types were not. From another point of view, Mansour criticized what he called the excessive use of "ascriptive" variables such as age, sex, marital status, etc. possibly because they are easy to measure. Perhaps there is need, as Magendzo and Hevia suggest, for a different type of research that can take into account variables that deal with the full range of student-teacher interaction.

IV GAPS AND IMPLICATIONS FOR FURTHER RESEARCH

In this chapter we attempt to relate some of the results of this review to the policy issues stated at the beginning, underline the major research gaps, and propose some suggestions for further research.

1. Research Results and Policy

Research results shed some light on the issue of the selection of teachers to enter training and the educational system. Personality consistently appears as an important factor when teacher classroom behaviour and pupil achievement are considered. But the question of policy-makers as to what type of personality is best suited for what type of children and at what levels, is not clearly answered by the research. There is, however, a suggestion that regional differences may make a difference -- that an extrovert type who is effective, for example, in classroom skills in Latin America would not be so in Africa, where he may even have negative effect on student learning. The same personality traits that would make a teacher more effective in Thailand may not show up at all in Nigeria. On the other hand, obviously important traits such as emotional stability consistently appear in a variety of research settings as conducive to learning and teaching skills.

It is obvious that sex and age of the candidate cannot really play a part in deciding who is to teach, but the fact that female teachers in some regions perform more efficiently and are more satisfied with their profession is an important one. Is it "the female personality" that plays a part or are there other influencing factors? In some countries, a relatively low proportion of teachers are women; those that do enter teaching are probably a highly motivated, intellectually select group. But in fact are they? Are women more satisfied with their jobs, and more highly motivated (and, therefore, presumably better teachers) because teaching, although less prestigious and poorly paid, is compatible with their family duties? The answer to these questions requires a different type of research. In other countries, the teaching force is predominantly female and male teachers tend to be those who are rejected from more prestigious professions; they thus would compare unfavourably with their women counterparts.

The next important issue has to do with qualifications. Research provides guidance in this respect: training affects both teacher classroom

behaviour and student achievement. But there are several indications that the effect of the level of qualifications is not the same everywhere. This may be explained in the case of countries where the level of academic requirements (for example, in secondary school) is lower than the level of preparation of the least qualified teacher, thus effacing possible effects of higher qualifications. A lack of difference of effect between more and less qualified teachers might also be found in places where the level of teacher training is relatively high or uniform for all teachers. It also seems to be the case that in the initial school years when home and social background factors have a strong bearing upon the child's ability to profit from school experience, higher qualifications do not make much difference. Thus, the problem does not seem to be so much one of qualifications per se, but what these represent in terms of a teacher's attitude to education, his or her command of subject matter, ability to interact with pupils, and ability to teach.

Higher qualifications do not necessarily mean a graduate degree; nor does possession of a higher certificate necessarily mean that a person is better trained. What then are effective characteristics of training? There were not very many answers to this question. Some evidence indicated that shorter preservice training followed by periodic inservice programmes (in other words a greater spread of training experiences) was preferable to longer initial training. The same was found to apply to the preparation of adult educators.⁶ What experiences in training produce attitudinal, behavioural, and cognitive changes in teachers? There was indication that feedback as provided by microteaching, pupil observation, and self-ratings was helpful in promoting such changes. Attitude and behaviour change was also aided by simulation techniques such as games, role-playing, case studies, and where "indirect" modes of teacher-pupil interaction were considered desirable, training through "interaction analysis". Practice-teaching also improved teaching, thus suggesting that longer periods of practice during training might be advisable. All these techniques and arrangements deserve more experimentation and critique from different cultural perspectives.

In relation to student achievement, it was not clear from the results under what conditions pre- or inservice training operate best; but for student achievement in some scientific subjects such as chemistry, biology, physics, and mathematics and for attainment of some cognitive objectives, subject matter specialization was effective.

6. International Council for Adult Education. The world of literacy: policy, research, and action. Ottawa, International Development Research Centre (IDRC-117e), 1979.

Experience appeared as a relatively important factor both for teacher behaviour and for pupil outcomes; but it interacts with other factors. For example, in schools with less qualified staff, the effect of experienced teachers was noticeable, while it was not so where teacher qualifications increased. There seems to be an optimum timespan for experience to have an effect; research indicates fairly consistently that this period lies somewhere between 10 and 20 years of experience and 30 to 40 years of age. Inservice training at any time in the teacher's career might not then be equally effective, nor would an indiscriminate assigning of teachers to classroom situations requiring special skill and dedication.

One of the important issues with which a policy-maker needs to contend is how to keep a teacher satisfied with his job, creative, flexible, and open to change, while at the same time effective in achieving the objectives of the system. Several background factors affect teacher job satisfaction, but perhaps the most important one may be the prestige of the profession. The greater satisfaction of female teachers or of teachers in younger classes or of lower SES may be explained because these teachers do not perceive the profession as below their social level, and do not have the same aspirations as those in other groups. Hence, there is a need for policy measures that help raise, if not the prestige of the profession, at least the well-being of those who practice it. What little research there is on this problem indicates that incentives such as recognition, advancement, and satisfying interpersonal relationships are in general important factors for job satisfaction. These of course are obvious facts but sometimes forgotten. Work conditions such as heavy syllabus, excessive workload and lack of resources negatively affect the teachers' behaviour. The day-to-day ability to cope with hazards is partly the result of job satisfaction, partly of age (30 to 40 years as an optimum age range) and partly of adequate skills which appear to be furthered by pre- and inservice training programmes. Furthermore, whatever can be done to improve the public's view of the role of the teacher helps reduce anxiety and teacher classroom problems. Most of the reviews reported conflicting views among parents, pupils, teachers, administrators, and members of the local community regarding the teachers' role.

There were few indications relating to the many issues posed by classroom practice. Teacher expectations affect pupils' perception of their capabilities and achievement; and teacher expectation or pre-judgment is very often the effect of information passed on to the teacher before he or she ever encounters their pupils. More discussion by teachers in pre- and inservice training of the effects of expectations might alter their attitudes.

On styles of classroom interaction and teaching, there were some contributions. If "discovery-learning" and all types of active, inductive

methods better develop higher cognitive abilities, there are a number of implications for teacher preparation (and inservice training) that follow. There are also considerations to be had regarding the interplay of class management and mass-communication techniques and aids that may render the "discovery-method" approach easier.

2. The Unanswered Questions

Virtually all the reviewers commented on the inadequacy of policy-research on teacher effectiveness. What research there was, they felt, was fragmentary dealing with a range of problems more in tune with the "study of education" than with the practical concerns and needs of the country. If one considers the long-term issues that are part of Third World education policies, one is inclined to agree with the reviewers.

There was practically no research on the role of the teacher as an agent for social change and community development. Researchers seemed concerned with describing teacher characteristics, looking at some classroom situations, and measuring student cognitive outcomes, but the role of the teacher in so many of the agricultural communities that form part of the Third World countries in Africa, Asia, and Latin America was not investigated. Neither was there research on the interaction effects of communities and teachers upon educational change (though perhaps the type of research that might have dealt with these aspects was not uncovered by the reviewers as they concentrated on more strictly education-related research). Also, despite the wide variety of social, economic, and cultural changes taking place in rural communities, no research was reported on how these affected teacher behaviour and pupil outcomes.

In countries with very specific policies such as Malaysia, where changes in the language used as the medium of instruction are in process, there was practically no research related to language. In fact, only in the Philippines were there any studies on the inter-relation of the medium of instruction to teacher effectiveness.

With the growing concern about democratization of the educational systems and equality of educational opportunity, there is need for research that looks into those school experiences that increase or reduce initial inequality. Yet no research moved beyond identifying background variables or school resources as contributing factors to pupil success or failure. There were no answers to questions such as what happens in the classroom that stops the slum or peasant child from learning in the first years of primary school.

Most of the developing countries have established sizeable programmes of inservice training. Although some effects of these on teacher behaviour have been assessed, these were usually done within a very short time after

the inservice programme (or at the end), and there was scarcely any research that evaluated the effect of inservice training upon student change, or the retention of effects through time.

The growth of non-formal education, especially adult non-formal programmes, could have inspired at least evaluative research on its effects; yet little is known about the teachers or educators in these settings and about their influence on student outcomes. This gap was evident not only through results of teacher effectiveness reviews but through a recently completed review on literacy research (ICAE 1979, op.cit.). With training institutions in some places wanting to set up non-formal teacher training programmes, the need to consider research in this area becomes an important issue.

The interactive effects of cultural and teacher-related factors was hardly considered as a subject of research. Few studies looked into classrooms or particular settings to see how these affect and interact with teacher behaviour and attitudes. For instance, although sex (females) and personality may be important for achieving certain results, how do these characteristics produce effects which are different in the various geographical, social, administrative settings, or how do pupil characteristics intervene?

Research on teaching styles is encouraging, at least for the achievement of certain objectives, but more research is needed on the styles adequate to stimulate lower levels of cognitive achievement. There is almost no research that looks at pupil outcomes, other than those in the cognitive domain, such as social attitudes, affective change, and skill acquisition.

On administrative arrangements, there is some research but it is scattered and piecemeal leaving important gaps. For instance, there is very little on the training role that supervisors might play to improve teacher effectiveness. Moreover no attempted answers exist to questions such as the following: If low salary produces dissatisfaction, is this the most important contributing factor? If more money were invested in resources and teaching facilities, would the negative effect of low salaries upon job satisfaction decrease, and would classroom results improve?

3. The Road Ahead

All the reviewers made suggestions in terms of what teacher effectiveness studies should investigate. They relate to the type of studies needed, methodological issues, and content areas of research.

(a) Type of studies and methodology

A generalized conclusion after surveying achievements and gaps

in the reviews is the need to move away from the macro type of research dealing with variables that cut across country boundaries and often fail to reflect the effects of particular settings. As Mansour states: "finding a universal pattern or profile of teacher effectiveness does not seem possible". The move should be toward studies that centre on the teaching situation, and seek to identify the variables that may be producing different effects under varied conditions. These should be studies performed at the classroom or community level, using different methods from those of the classic survey. Experiments, case-studies, observations, and ethnographic techniques might lead to more profitable results.

A second, urgent need is for longitudinal studies that look at effects over time. Initial stages of observation might allow for identification of variables and possible relationships different from those found in the research in developed countries. The later stage of experimentation might then provide more profitable results. Equally necessary is the development of appropriate and locally validated instruments such as observation and outcome measures, and attitude scales.

(b) Content

Keeping in mind the need to examine how teaching and learning take place in particular geographical and cultural contexts, the following is a list of research problems that emerge from the gaps highlighted in this review and from policy requirements.

- Effects of changes in the educational system upon teachers and students (behaviour, skills, attitudes, achievement).
- Relationship between pupil educational outcomes and roles expected to be fulfilled by teachers.
- Differential effects over time of teachers with and without inservice training.
- Interplay of teacher background factors (sex, personality, training, experience) and pupil characteristics, in terms of achievement, skills, and attitude change.
- Observation of teachers rated as effective on account of desirable changes in pupils and/or community; identification of contributing factors.
- Interplay of personality factors and training in the use of different types of teaching styles and methods.

- Identification of thresholds: optimum lengths of training for desired products, timing and length of inservice training; length of experience before it ceases to have an effect; level of teacher's knowledge (in different subjects and for different levels) that affects student learning.
- Work conditions and student characteristics that affect job satisfaction and commitment to teaching.
- Role of the teacher in curriculum innovations: what are its effects on teaching and pupil learning?
- Observation of what goes on in the first years of primary school: what teacher factors (teaching activities and techniques used, teacher attitude and expectations, teaching aids, and modes of assessment) impede pupil success, in low socio-economic urban and rural settings? How can rural teachers in multi-grade one-room schools handle their task efficiently? What use can be made of peer or cross-age teaching? Differential effects of trained and untrained teachers performing with learning packages, programmed instruction or other such aids.
- What factors condition success in vocational training as opposed to academic secondary education; what difference is there between teachers in action in agricultural productive schools as opposed to rural non-productive, or to urban schools.
- On the medium of instruction, research that attempts to answer questions such as: what effect on learning does the ability to teach in the vernacular have particularly during the early years? How does language ability of the teacher relate to drop-out and repetition of students?
- A number of adult literacy training programmes require the teacher to play a role quite different from the traditional one (e.g. Freire's conscientization, Peru's ALFIN): what happens in these adult learning situations, and what teacher behaviours dominate? Can results be traced to teaching factors?

V THE RESEARCH RESULTS AND THE FINDINGS IN CURRENT LITERATURE

The history and characteristics of research on teacher effectiveness in the United States and to a lesser extent in European countries is partly reproduced in the research found throughout this Review. Most of the early research in the United States attempted to describe an effective or good teacher, first by obtaining opinions from students or educational experts and later by administering rating scales (dealing with instructional methods, classroom management, and professional attitudes). When those results were related to student achievement, no consistent relationship was formed. Despite that experience, a number of studies encountered by the regional reviewers for this work were essentially opinion surveys attempting to discover what characterizes a good teacher.⁷

Apart from this survey type of research, a fair proportion of studies in the various reviews are devoted to linking contextual factors and teacher personal characteristics to teacher behaviour and teaching skills as measured mostly by opinionnaires and rating scales. One might classify this type of research, which assumes that "appropriate" behaviour will have an impact on students has, for the most part, been abandoned by researchers in the developed countries. More prevalent now is research that attempts not only to describe what happens in the classroom and to identify teaching behaviours, skills, and attitudes but also to relate the process to desired student outcomes. To a considerable extent, this type of research consciously omits consideration of teachers' characteristics ("factors" as they have been called in this review) because researchers had obtained inconsistent results in previous research of this type (Getzels and Jackson 1963; Gage 1963). Increasingly, however, there is a renewed interest in the interaction of a wide range of factors operating at the classroom level, including measures of teacher personality and other related characteristics. Dunkin and Biddle (1974), for instance, illustrate this expanded approach with a model adapted from Mitzel (1957) that considers:

- (a) Presage variables: teacher formative experiences (social class, age, sex), teacher training experiences and teacher properties (skills, intelligence, motivations, personality).

7. Studies of this type were reported in the reviews from the Philippines, Thailand and Africa, but results were not included in the synthesis as they were not related to some form of outcomes.

- (b) Context variables: Pupil formative experiences (social class, age, sex, pupil properties, abilities, knowledge, attitudes), school and community contexts; and classroom contexts.
- (c) Process variables: the interaction in the classroom (teacher behaviour, pupil behaviour, observable changes in pupil behaviour).
- (d) Product variables: immediate pupil growth and long-term pupil effects.

Moreover, recent research on teachers is considering not only the observation of classroom situations with teacher and pupil behaviour as related to pupil outcomes, but also the differences that operate with different samples of teachers and pupils (e.g. research by Stallings 1978, McDonald et al. 1975, 1976, Mackie 1973, Murray 1972).

A special mode of carrying out classroom research, both in the United States and Britain, is the "ethnographic", "anthropological" approach. This centres on in-depth studies of the classroom with observers as participants, utilizing a varied and open-ended mode of inquiry. The ethnographic research seeks first a description of the classroom situation, then the identification of relationships, common phenomena, and critical processes (cf. Delamont and Hamilton 1976; Karabel and Halsey 1977).

The research reviewed in this synthesis contains very few examples of these later developments. As expressed before, the bulk of it either tries to link the teaching situation to pupil outcomes, or to link teacher background factors to pupil outcomes. Nevertheless, there are findings that might be looked at in relation to similar ones in the research literature of developed countries. These mainly touch on the teaching situation and shall be described in the following pages.

1. Teacher Training

In their review of research on teacher education, Peck and Tucker (1973) noted that from 1964 onwards, a significant development of research in teacher training has taken place. They synthesized the results in the following points:

- (a) A "system" approach to teacher education (instructional design) substantially improves its effectiveness. A good deal of research in this area is centred around three cases of the model: training in interaction analysis, microteaching, and behaviour modification.
- (b) Teacher trainees taught in the same way they are asked to teach their pupils are more effective in actually practicing it.
- (c) Direct involvement in the role to be learned (sensitivity-training laboratories or classroom simulation laboratories) contributes

more effectively to desired behaviour than do lectures or instructional theory.

- (d) By using the above techniques, it is possible to induce a more self-initiated, self-directed, effective pattern of learning in teachers and their pupils.

In his review on microteaching in teacher training, McKnight (1971) also noted the effectiveness of microteaching, modelling (use of videotape models), and the feedback effects of microteaching as adjunct to supervisory critiques for changing behaviour.

However, all these studies failed to use student outcomes as criteria. Good, Biddle and Brophy (1975) questioned whether the effects of techniques such as interaction analysis, microteaching, mini-course programmes and other competency-based teacher education are known to be effective if one looks beyond teacher behaviour to their impact on student learning. They contended that much more research was needed on teacher behaviour resulting from these techniques in interaction with pupils and other contextual differences. Nor have these techniques been examined over time. Turner (1975) recommended summative evaluation of the long-term effect of teacher training on student learning, attitudes, and behaviour. Although some studies exist applying the criteria for teacher success (student attainment, professional judgement, and student judgement), Turner believed that there was not enough dependable information to formulate more effective policies and practices in teacher education. Needed are longitudinal studies providing information on how selection, training, and placement variables moderate each other and how they may be linked to teacher success. Also needed are studies that provide indications of the motivation for entering the teaching profession and experiments in screening potential teachers early in the training process. On the training process itself, like Good, Biddle and Brophy, Turner considered the need for further development and evaluation of procedures such as modelling, microteaching, mini-courses, performance-based teacher education, and especially of technologically based simulation techniques.

In the light of the above discussion, the results of research in developing countries prove interesting. The positive effects of microteaching and simulation techniques on student teacher behaviour was established in several studies in Thailand, India, Nigeria, and Malaysia. There was no research, however, indicating whether this behaviour transferred to the classroom situation (with the exception of the Nigerian study) or whether it was effective in promoting student outcomes.

There was also support for the effects of training in specific objectives, skills (India) and in interaction techniques (Thailand and India) as far as change of student teacher behaviour and transfer to

classroom situation is concerned. Interaction analysis, as a training tool, was related in some research to pupil attitudinal outcomes (India) and the use of indirect teaching techniques was found, in some studies, to be related to pupil achievement.

As observed, although research in this area is incipient and scattered, there is a trend in the Third World which approximates the one identified by research in developed countries. Also, the same gaps and research needs are noted in both settings.

2. Teaching Styles and Modes of Interaction

Comparisons are not easy in this area. Descriptions of styles and the types of situations studied vary enormously. It is not surprising, then, that research results are generally inconclusive.

Research on modes of interaction is abundant due to the proliferation of classroom observation techniques, particularly the Flanders' type of interaction analysis. Results of studies of this kind in the developed world have been reviewed by Dunkin and Biddle (1974) who noted in general that diverse findings for "indirectness" in one group of studies are denied or reversed in another, although it is not known whether this is due to curvilinearity, weakness of concepts and methods, or contextual effects. However, they also found that teachers who are "indirect" are found in the same classrooms as pupils who achieve more and have more positive attitudes. A British longitudinal study on the effects of verbal style in a continuum from open-ended style to expository in physics learning by 16-18 year olds, supported open-ended style for more complex cognitive objectives and expository for more consistent learning results (Houston 1974).

Bennett (1976) found differential results when reviewing observational, experimental, and comparative survey studies of indirectness at the primary school level. Observational studies show that indirect (and/or less hostile) teacher behaviour is generally conducive to pupil achievement and improved attitudes. He notes the possibility that these results are non-linear, that is, that they are different for different grades and pupil ability levels, and dependent on the task complexity of the achievement measures. In experimental and comparative survey research, however, Bennett found results indicating weak support for effects of indirect behaviour on achievement and practically no research on its effect upon attitudes. In general, he found support for non-linear effects of indirect behaviour and suggested that the relationship might be mediated by the anxiety level of pupils.

Research on modes of teacher-student interactions generally fail to take into account SES factors and other student differences which probably affect success of indirect versus direct teaching methods (Good, Biddle

and Brophy 1975). Also, they are concerned only with overt, observable, measurable behaviour, focus on small bits of behaviour, utilize pre-specified categories and involve assumptions about teaching and learning which are seldom critically examined by the researchers (Delamont and Hamilton 1976).

Most Third World research that examines modes of interaction compares the use of indirect versus direct modes of verbal interaction in the classroom and democratic versus authoritarian styles of classroom conduct. In general, results are as inconclusive as in developed countries but there seem to be regional differences. For instance, the Latin American review found a positive relation between "democratic" or "permissive" teacher attitudes and student achievement, as well as less school retardation; whereas Indian research pointed to the positive effects of indirect verbal behaviour upon student attitudes but only negligibly on achievement. Studies of this type in three African countries and in Thailand did not show a relationship between mode of interaction (whether direct or indirect) and pupil achievement. Reviewers in most regions made the same criticisms of Interaction Analysis as those presented above.

Another problem widely researched in developed countries is the discovery/inductive/activity/pupil-centred versus the expository/deductive/passive/teacher-centred approach to teaching. This is a difficult area because the concepts themselves are hazy; nevertheless, there seems to be a general understanding of what they mean. Reviewers of research in developed countries conclude that the superiority of the discovery method in science education (where it has mostly been applied and researched) has yet to be proven due to the ambiguity of the language of discourse (Schulman and Tamir 1973). Likewise, Dunkin and Biddle (1974) assert that research in this area has been insufficient and that classroom observation is needed to assess the effects of the method both in the natural and social sciences.

Bennett's review (1976) found mixed results: but there was support for the finding that discovery methods and progressive school climate lead to higher levels of learning and affect attitudes. Kazembe (1973) in an experimental study of British 10-11 year-old children, measured the effect of changing the habitual mode of learning in students. The findings showed that pupils usually taught by the traditional method were not at a disadvantage when they were presented with a discovery technique and, irrespective of habitual modes of learning, pupils taught by the discovery approach scored better on a delayed test.

Results of research in the Third World countries produced considerable support for the notion of a positive relationship between discovery/inquiry methods and higher levels of cognitive outcomes such as reasoning and application. Most of the studies reviewed were experiments carried out in

the area of science and mathematics and at the upper grades of the elementary or at the secondary school level. Similar results were found for the use of inductive methods, teaching for understanding, project methods, and activity and laboratory techniques.

This is undoubtedly an area where research has yet to detect effects of various styles upon different types of children, subjects and levels; but the results of Third World research are certainly consistent and indicative of possible teacher training policies.

A more recent approach to research on teaching is one that seeks to identify specific teaching behaviours conducive to pupil gains, when other contextual variables have been controlled (SES, personality). Such is, for example, the purpose of the Beginning Teacher Evaluation Study (McDonald *et al.* 1975, 1976) that has tried to identify situations in which teachers have made a difference, and then describe the specific characteristics of their behaviour. Teaching behaviour according to McDonald involves dealing with: instructional time, instructional content, instructional material, instructional organization, instructional activity, teacher-pupil interaction, or pupil behaviour. A series of such behaviours was identified for different grades in reading and mathematics and it was found that classroom instructional processes predicted much or more of the gains in children than did entering test scores. Along similar lines are the Follow Through Planned Variation Study (Stallings and Kaskowitz 1974) and the National Institute of Education's study on teaching processes effective in producing reading gains in secondary schools (Stallings 1978). These studies, more than assessing the impact of one or another teaching style, highlight the importance of the teacher's action in the learning process.

3. Personality and Other Teacher Characteristics

As explained before, researchers in developed countries have played down research on teacher characteristics in recent years because early results were inconsistent. This applies to personality factors (Getzels and Jackson 1963) as well. However, there is renewed interest in this area, particularly as related to teacher training selection policies. Peck and Tucker (1973) reviewed several studies examining the relationship between personality traits and teacher behaviour in teacher training institutions. A correlation was found between inservice male teacher trainees who were achievement-oriented, autonomous, non-affiliative, aggressive, authoritarian and seeking consistency -- and the degree to which they talked during the training course.

Hunt and Joyce (1967) found that student teachers who thought at a high conceptual level were more flexible, capable of invoking alternative solutions, and more able to help children think for themselves. A similar

conclusion was reached by Harvey et al. (1966) who found that more abstract teachers were more resourceful, less dictatorial and less punitive than concrete teachers in a classroom situation. Harvey et al. (1968) further found that dictatorial behaviour correlated negatively and significantly with pupil cooperation, involvement, activity and helpfulness, as did punitiveness. Murray (1972), studying the effects of teacher dogmatism and control ideology on affective and cognitive development of British 4th year Junior School children, found that traditional control is related to the development of a favourable orientation of pupils to teacher and class; he also found that teacher dogmatism tends to be positively associated with low level cognitive achievement of pupils. A recent cross-cultural study carried out in Israel (with American and Israeli samples) compared personality characteristics of students who enter teacher training with those of the teaching profession (Zak 1978). Results indicated the same personality structure in both groups, characterized by conformity, conservatism, submissiveness, sensitiveness, lack of tendencies for advancement, shrewdness, self-security, and high self-esteem. This, in turn, suggested the hypothesis that throughout training personality traits remained unchanged.

Finally, it is interesting to note a study that uses the phenomenological method to get at internal mental processes of teachers considered to be major underlying determinants of behaviour and the teaching environment (Bussis, Chittenden, Amarel 1976). The study is really an exercise in the methodology used and does not lead into relationships with teacher effects. But it is an index of this renewed interest in the deeper structure of a teacher's personality.

The reviews of the developing world (especially India) detected an important number of studies relating personality traits to teacher behaviour and student outcomes. As in the case of developed world research, there was not much consistency regarding which traits are most effective, although some indications did appear. Latin American studies on "democratic" and "authoritarian" attitudes found a general negative correlation between authoritarian types and student achievement. In general, emotional stability, extroversion, and self-sufficiency were related to indirect teaching behaviour and to efficient teaching skills.

Research in this area may point to the need for reassessing those personality traits that are difficult to change through training but that bring about negative effects both in teacher behaviour and pupil outcomes.

Another important group of studies are those relating teacher attitudes to pupil outcomes. But attitudes are difficult to describe and appear in research that deals with styles of teaching and interaction, as well as in research that looks at personality traits. Third World research, assuming that teacher attitudes are expressed in behaviours which

in turn affect pupil outcomes, has focused on the effect of variables such as sex and SES on attitude formation. It was thus found that females are more "modern" in their approach to teaching and that sex, for example, plays a different role in regard to the effect of SES upon attitudes: females of the upper socio-economic group have more positive educational attitudes to pupil misbehaviour than do males of the same group. Attitudes also appeared to be affected by administrative and organizational arrangements of the school system, and specifically teachers of younger classes had a better attitude to the profession and students.

Research on these aspects in the developed world as reviewed by Kahn and Weiss (1973) also has ascertained the effects of school arrangements upon teacher attitudes: more positive attitudes to students were reported among elementary school and female teachers, and among teachers of self-contained classrooms as opposed to special-subject teachers.

However, what is important in this connection is whether attitudes can be changed. Khan and Weiss reported in their review favourable changes of attitudes about general education issues but not about pupils as a result of education courses. They also found that attitudes of supervisors and cooperating teachers had an effect on attitude change of student teachers. Studies in Third World countries indicated a positive effect of training (especially inservice) upon trainees' attitudes, especially when methods such as simulation techniques, small-group discussion, and various forms of feedback strategies were used. The impact of specially designed treatments upon attitude change has also been supported by developed country research (Khan and Weiss 1973).

Another teacher characteristic that is often related to teaching behaviour and outcomes is experience. The Third World research pointed to some effect of the length of teaching experience upon teaching techniques and modes of interaction. The effects of teaching experience in developed world research was assessed by Guthrie (1970) when he reviewed nineteen education production function studies, and found that in fifteen of these, experience was related to pupil achievement. From another angle, a British study found significant effects of experience upon classroom interaction patterns in the teaching of science (Eggleston et al. 1978): as student teachers gain in experience the patterns of interaction learned in training tend to weaken and they approximate patterns of teachers with longer experience.

4. Teacher Expectations of Pupils

Third World research showed consistent results on this variable with regard to its effect on pupil achievement and attitudes to learning. Results support the findings of Rosenthal and Jacobson (1968) and other similar studies, in the sense that teachers' previous knowledge (subjective

or otherwise) of students' intellectual ability affected their academic self-concept and achievement. Other research in the United States, without totally supporting Rosenthal and Jacobson's findings, has shown that much of what students learn is a function of teacher and student expectations (Good, Biddle and Brophy 1975). Reviews by Lockheed-Katz (1973) and Averch et al. (1972) tend to corroborate findings of a stronger effect of teacher expectations upon younger more than older pupils. More recently Rist (1978) has argued that evidence from research on the effects of labelling over social deviance not only supports the findings on the "self-fulfilling" prophecy as a consequence of expectations, but also provides a model for the study of the processes by which these expectations affect pupil outcome.

5. Interactive Effects of Pupil-Related Characteristics

This is an area of increasing concern in the developed world. The feeling is that much more research is needed to find out what teacher strategies work with what pupils in which situations. There are practically no results relating to this question in the developing countries; some research can be found on pupil characteristics of sex and grade level and their interaction with teacher characteristics to affect outcomes, but hardly anything on the effects of student attitudes, personality types, and group characteristics.

Turning to some of the developed world studies, Gardner suggested on the basis of research done in Australia that it was possible for the same teaching behaviours to have markedly different effects depending on the personality of the pupils: very serious teachers tend to have a beneficial effect upon attitudes of serious pupils, but a deleterious effect upon attitudes of playful pupils. This sort of relationship, he adds, is not uncovered by the commonly used paradigm which employs class means as measures of pupil outcomes, and suggests the use of more sophisticated statistical designs. Similarly, Barr and Dreeben (1978) suggest that rarely in current research on teachers' effects are the characteristics of individual pupils considered as they may affect instruction; they emphasize the need for a type of research that centres on a description of classroom events.

Still related to personality differences in pupils, studies reviewed by Trown (1973) suggested that at the primary level, anxious children perform better with a more supportive structure whereas non-anxious children perform better in an exploratory structure, as do also extrovert children. Washburne and Heil (1960) found significant differences in pupil achievement according to personality of teachers and pupils. Likewise, Arnold (1974) studying the attitude to school of less academic children (4th and 5th year of British secondary schools) found these to be dependent

upon pupil-centred teaching and attitude of teachers. The more highly pupil-centred the curriculum, the better the attitude of the less academic children. Teachers who are both in favour of pupil-centred techniques and have good contact with pupils are likely to exert stronger influence upon pupil attitude.

Bennett (1976) reviewed studies that considered effects of different types of elementary schools and classrooms on achievement. He found mixed results on the effects of progressive versus conventional schools in the United States and Britain. A couple of British studies showed that progressive type schools and teachers produced gains in divergent thinking tests (Richards and Bolton 1971 and Haddon and Lyton 1968).

Everston and Brophy (1974) looked at the interactive effects of SES, teaching styles and learning in elementary schools. They found that high SES students learn more when taught through "indirect" methods; lower SES students learn more when taught by a style characterized as "over teaching"; lower SES students progress most rapidly in early grades in a carefully planned and teacher structured environment, but as they become more accustomed to the school routine, they learn better with indirect methods. Other studies yielded similar results: primary grade students from middle class or lower class background performed better in reading and mathematics in formal classrooms (Solomon and Kendall 1976, Stallings and Kaskowitz 1974, Bennett 1976).

6. The Direction of Current Research in the Developed World

On the whole, research on teacher effects has recently centred its attention on the problem of whether teachers do or do not make a difference. The challenge of the Coleman and Jencks' reports in the United States and of the Plowden Report in Britain stimulated researchers to look for the proportion of teacher contribution that there is to pupil outcomes. Such is for example the thrust of the McDonald et al. study on Beginning Teacher Evaluation, that up to the moment has indicated an effect of teachers mediated by a pattern of teaching practices that differs in terms of subject matter and grade level. The study has also found that: a) the nature of the decision-making process in the school is a predictor of its teaching styles; b) teaching performances may be a direct function of teacher aptitude; c) knowledge of teaching methodology and subject matter appears related to teaching performance, probably combined with a teacher's characteristic perceptual and cognitive style; and d) measures of teacher attitudes and aspirations are associated with certain aptitudes and teaching practices.

Among the instructional variables that do seem to make a difference, Rosenshine (1978) signals out from the results of current research "content covered" and "academic engaged time" and finds these variables associated

with classrooms where there is a strong cognitive focus, orderliness, warmth, supportiveness, teacher-directed activities, and controlled practice.

Not only skills and instructional variables may make a difference, but also the character, personality and empathy of a single teacher. In this direction, a very interesting study by Pederson et al. (1978) pointed to the effect of a first-grade classroom teacher on her pupil's chances of success in life, mostly on account of her expectations of pupils and the way these influenced their academic self-concept and subsequent performance. The study traced the history of a group of children of a very low socio-economic background into their later life, and examined the school factors that might have led some to succeed in life and others to lag behind. The authors found that presumably a good proportion of the successful children's path was due to the influence of their first-grade teacher.

A relatively less explored way but one which is pointing to new insights into the teaching-process is the "anthropological" type of research which was already mentioned (cf. Stubbs and Delamont 1976).

A final comment has to do with non-cognitive outcomes; these by and large were not considered in research conducted in developed countries and much less in the research coming from the Third World. However, they are important outcomes of the system and often are rewarded through the (cf. Dreeben 1968) achievement marks. Simmons (1975) reviewed two studies that indicated that the types of attitude rewarded by the grading system were those required for adequate job performance in the established bureaucracy: traits indicative of docility, industry, and ego control. Evidence of independence and creativity, on the other hand, was penalized.

7. Results of Other International Reviews of Teacher Effects and Determinants of Educational Outcomes

Two recently completed international reviews have results that may be compared to those of this review on teacher effectiveness. The first one is the Review on Teacher Training and Student Achievement in Less Developed Countries (Torsten Husen et al. 1978). This study looked at 32 pieces from 19 developing countries seeking to identify the impact of teacher training; the study also considered the impact of other teacher characteristics that have been reviewed in this study. The type of research included was mostly bivariate or multivariate surveys and experiments, selected if they included teacher-related variables and weighted for assessment of results according to the sophistication of design and statistical analysis (multivariate experiments held first place).

The second study, The Determinants of School Achievement, A Review of Research from Developing Countries (Schiefelbein and Simmons 1979), a review of education production-function multivariate surveys, updates

an earlier one by Simmons and Alexander (1974). Although it touches on several teacher related variables such as class size, use of textbooks, and homework, only two are directly relevant to the teacher effectiveness review: education of teachers and their experience.

The main results of these reviews and the way they compare with the teacher effectiveness review are the following:

- (a) Teacher sex. In the Husen review, males were found successful in early grades and in promoting science achievement, while females were better teachers of subjects such as English and French. The teacher effectiveness review detected a greater effect of females upon teaching behaviour, but only two studies found a relationship between sex and achievement (one which did not specify which sex, and the other favouring females).
- (b) Teacher age. There were mixed results but some evidence in Husen's review that older teachers were more successful with secondary school pupils. The teacher effectiveness review reported only one study where age was related to achievement.
- (c) Teacher SES. Both the Husen and the teacher effectiveness reviews reported results that tend to associate higher social background with better student achievement.
- (d) Teacher educational attainment. Husen's review produced mixed results, but schooling emerged as important for teachers of primary and early secondary grades and of subject areas requiring special skills (science, mathematics, literature). The teacher effectiveness review also produced mixed results. There was support for the effect of higher qualifications at the secondary level (in Malaysia, India, the Philippines, and several Latin American countries) especially for science subjects, but not for the primary level in Malaysia, Kenya, Uganda, and Egypt.
- (e) Teacher credentials and certification. Husen's review found evidence in the more complex and thorough studies of positive effects of training upon student outcomes. Schiefelbein and Simmons' review found that educational certification was significantly related to pupil achievement in 13 studies in Africa, Latin America, and Asia; the proportions, however, being different (in Africa the impact seems much less marked; however, only one African study was compared to eight in Latin America). The findings of both these reviews are consistent with those of the teacher effectiveness review.
- (f) Teacher ability and achievement. According to Husen's findings, the more intelligent and knowledgeable teachers produce high student performance. The teacher effectiveness review did not find many studies dealing with these variables, and those that did presented inconclusive results.

- (g) Teacher experience. Experience was important for primary and early secondary student performance in Husen's review. Schiefelbein and Simmons found seven studies that reported significant relationships but again in different proportions. Studies in Africa yielded only one significant relationship. The results on experience reported in the teacher effectiveness review were drawn from the same set of studies in Asia and Latin America as those in the Schiefelbein-Simmons review (see *The determinants of school achievement: a review of the research for developing countries*. Ottawa, IDRC-TS24e).
- (h) Teacher inservice training. A similar lack of research on effects of these programmes was noted in all three reviews.
- (i) Teacher expectations of students. Results are consistent in both Husen and the teacher effectiveness reviews: positive teacher expectations produce positive results in students.
- (j) Teaching methods. Husen's review did not report much on this subject, save positive effects of programmed instruction and instructional television. The teacher effectiveness review produced considerable evidence in favour of the discovery/inquiry teaching style for higher order cognitive outcomes, of positive effects of inductive and meaningful styles as well as results relating to a series of other teaching strategies and modes of interaction.
- (k) School-teacher block variables. The Husen review, using results from the IEA studies, found that conditions surrounding school and teachers are important in accounting for differences in student achievement. The evidence on this variable in the teacher effectiveness review is disperse and inconclusive. There was some indication of effects upon achievement of school administrative and organizational variables, some inconclusive evidence on the effects of student/teacher ratio and some regarding the negative effect of lack of facilities and teaching resources upon student achievement. Frequency of English in childhood home (where English is the medium of instruction), teacher absenteeism and punctuality, assignment of homework, and time spent preparing lessons did not appear as an important subject of research in any of the reviews (although there were some studies that yielded inconclusive results).

The overall impression after considering results of reviews in both developed and developing countries is that there is not much more to be gained from studies that seek to identify links between classic teacher-related variables (as in education production function studies) and student results. As indicated elsewhere much more needs to be investigated regarding the contextual (socio-economic, political and cultural) effects upon teachers and students and the differential impact of teaching-learning strategies, arrangements, styles, and interaction modes upon

s tudent and community outcomes; also more needs to be done regarding the ways in which teachers can be most productively trained. This implies a research methodology which starts from the microsituation with few pre-suppositions regarding the patterns of relationships among the various factors.

VI CONCLUSION

Are the results of this review disappointing? From the perspective of secure guidelines for policy, they may be. The review has not come up with startling facts, nor did it confirm or refute in a definite way commonly-held assumptions; it has not been able to assert that "this is what will work in these circumstances". But from the perspective of finding out what goes on in teacher research in the Third World and even more than that, of finding out whether there are indications of some agreements and a road to follow, it is a positive review.

The review represents a conscientious effort to uncover sources of information beyond what usually is included in reviews done in the developed world. In this respect, it is possible to say that, disappointing or not, its results do give a picture of the state of teacher-effectiveness research in the Third World. Such research is still very much coloured by the use of imported designs and methods and by a selection of problems that do not necessarily represent the real issues that lie behind educational ineffectiveness. Nevertheless, some of its results are helpful as they point either to directions for change or to new problem areas to be researched. The review had something to say about the effects of training and qualifications and of some teacher training methods as compared to others. Results supported findings of research in developed countries regarding effectiveness of feedback techniques in training such as simulation and microteaching, and of interaction analysis as a teacher training technique. In regard to teaching style, there were definite effects of discovery-learning methods upon higher-level cognitive outcomes -- a finding which is particularly interesting as surveys of existing practices in many developing countries indicate these methods are hardly used and teaching is largely rote, mechanical, and expository.

The review suggested that teacher personality traits play a part that is more important than usually considered, thereby implying policy decisions regarding teacher selection and training. Likewise, the review noted the effects of experience, age, and sex on variables such as job satisfaction and attitudes to teaching that presumably affect pupil changes. In some cases, it was consistently clear that such attitudes do affect, for example, pupil achievement -- such was the case of democratic versus authoritarian attitudes or of teacher expectations of pupils.

The review, however, has revealed inadequacies in the understanding of the teaching-situation and of how to research it. By concentrating on associative studies between teacher characteristics and pupil achievement, or between teaching techniques recommended by the developed world and pupil results, researchers have neglected to look into the actual process of teaching and to identify different sets of relationships between variables. The context of teaching, the values hidden in the classroom occurrences, the nature of the interplay between social context, teaching activities, and pupils was not really examined anywhere. Nor were effects of teachers upon types of attitudes, values, and social patterns of pupils examined even though there is evidence from sociological research that teachers do produce such non-cognitive effects in pupils.

In countries where much is made of educators as being agents for cultural and social change, more needs to be investigated regarding how effective they are either in promoting change or favouring the status quo. There was no treatment of how the teachers' position in the community might affect performance in the classroom, nor was there research evaluating attempts to use individuals from the community as teaching resources in schools.

The obvious conclusion from the above paragraphs is that to some extent at least, a different type of research is needed. Macro studies of the effects of the educational system that follow the pattern of the input-output model probably are not adequate and cannot yield more information than what already exists. Insight into the teaching process and the interaction of its variables can probably best be gained by structured and non-structured observational techniques. On the basis of this information gathered in a variety of contexts it might be possible to suggest actions (in teaching and training) to be experimented with and evaluated.

As a process, the system of search practiced in this review was challenging. Probably for the first time the countries involved know what has and has not been done in teacher-related research, how it has been carried out, and by whom. Possibly the situation in other areas of educational research in Third World countries may not be any different. The noticeable finding in this respect is that most of the research did not originate from policy. The reasons for this may be varied. Partly they may lie in an inadequate formulation of educational concerns on the part of policy-makers, or partly in the fact that policy issues must be considered in the light of political urgencies that do not always leave space or time for research. Thus policy-oriented research, though important, is not always possible or even desirable.

Looking then toward the future, this review points to the need for research that examines, as suggested above, the processes of teaching.

Such research, especially if it is to deal with the educational needs of the poorer areas, must pay greater attention to the role of the teacher in the community. This might be done, for example, through community studies that focus on the role of the teacher as expected by the particular community and using ethnographic techniques. It might also be done by drawing from the wealth of anthropological and other social science research that has included information about the position of the teacher in developing countries' communities.

Finally, whatever the characteristics of future teacher effectiveness studies in the Third World, it seems desirable that some of these at least be of a more complex nature, incorporating assessment of effects over a period of time. Major decisions affecting the operation of the educational systems are badly in need of this type of information.

APPENDIX I - TABLES

TABLE 1: COMPARISON BETWEEN DISCOVERY/INQUIRY AND EXPOSITORY METHODS

Study	Country	Subject	Level	Type	D.E	E D	D E
El-Jabbar (1977)	Iraq	Science	Primary	Experiment	Knowledge		Comprehension Application
Goyal (1975)	India	Science	Sec. Rural		Achievement		Achievement in science
Caballero (1976)	Philippines	Social Studies	Sec. Rural	Experiment	Knowledge		Retention, thinking skills
Parenteia (1976)	Philippines	Social Studies	Sec. Urban	Experiment	Knowledge		Thinking skills
Balraj (1970)	Malaysia	Mathematics	Secondary	Experiment	Knowledge* Retention		
Prospera (1975)	Philippines	Mathematics	Primary	Experiment	Concept formation Retention	Certain units	
Bhatti (1974)	Pakistan	Physics	Secondary	Quasi-Experiment	Concept formation	Knowledge	Application
Kamal (1971)	Jordan	Geometry	Inter-mediate	Experiment	Knowledge Comprehension Retention		Application Asking questions
Wong (1975)	Malaysia	Mathematics	Secondary	Experiment			Achievement, attitudes
Tangsayan Booncham (1974)	Thailand		Primary	Experiment			Leadership characteristics Divergent thinking Academic achievement
Review of 12 studies	Thailand	Science	Primary	Experiment	Inter-core-relation of variables		Inquiry, scholastics aptitude, sense of responsibility, cognitive styles, concept formation, science achievement, processes of science skills, convergent thinking, self-confidence, scientific attitude
Cruz (1968)	Philippines	Mathematics	Primary	Quasi-Experiment			Achievement, reasoning, problem solving, attitudes
Thilakam (1975)	India	Science	Secondary	Experiment			Knowledge, comprehension, Application creative thinking**

*the expository group was ahead in the initial learning and no adjustment was made to affect such a difference.

**of male studies with high parental education and in aided schools.

TABLE 2: CHARACTERISTICS OF STUDIES RELATING TEACHER TRAINING AND QUALIFICATION LEVEL TO PUPIL ACHIEVEMENT

Independent Variable	Author	Type of Study	Statistical Procedure	Measure of Student Achievement	Sign
Training	Beebout (Malaysia)	Survey	Multiple regression	Index of individual student performance	+
	Raijiwala (India)	Experiment	"t" test	Achievement test in physics	+
	Attar (Iraq)	Quasi-Experiment	Not known	Achievement in chemistry and biology Achievement in physics	+ -
	Elison (Malaysia)	Experiment	"test"	Primary achievement in reading	-
Level of Qualification	Beebout (Malaysia)	Survey	Multiple regression	See above	+
	Juriah (Malaysia)	Survey	Simple correlation	MCE grades in Bahasa Malaysia	+
	Dhian Chand (India)	Survey	Multiple correlation	Achievement scores	+
	Bangkok Institute for Child Study	Survey	Not known	Achievement grades 1-4	+
	Vallente (Philippines)	Survey	Chi square	Achievement in physics	+
	Barsaga (Philippines)	Survey	Multiple regression	Scores National College Entrance Examination	+
	Isahak (Malaysia)	Survey	Multiple regression	Individual scores on "Standard Five" Assessment Examination	0
	Sifuna (Kenya)	Survey	Multiple correlation	East African Certificate Examination	0
	Heyneman (Uganda)	Survey	Multiple regression	Individual scores on School Selection Examination: English, maths, general knowledge	-

(Cont'd)

TABLE 2. (Cont'd)

Independent Variable	Author	Type of Study	Statistical Procedure	Measure of Student Achievement	Sign
	Ministry of Education (Brazil)	Survey	Not known	Pass/Fail first grade	-
	Schiefelbein and Farrel (Chile)	Survey	Simple correlation	Achievement in maths and Spanish	+
	Rivarola and Corvalan (Paraguay)	Survey	Multiple regression	Achievement science and reading, 4th and 6th grade	+
	Rivarola and Corvalan (Paraguay)	Survey	Multiple regression	Achievement secondary	0
	Ferrari (Brazil)	Survey	Not known	Pass/Fail first grade	0
	Zeidan (Egypt)	Quasi-Experiment	Not known	Achievement secondary	0

TABLE 3: DISTRIBUTION OF STUDIES BY REGION AND BY TYPE

	Ph.D.	Master	Bachelor	Independent	TOTAL
Africa	6	4	10	11	31
L. America	1	1	-	28	30
M. East	4	50	-	4	58
India	42	93	-	32	167
Thailand	4	177	17	21	219
Malaysia	9	12	5	4	30
Philippines	9	37	-	8	54
TOTAL	75	374	32	108	589

TABLE 4: DISTRIBUTION OF STUDIES BY REGION AND DESIGN

	*Survey Correlation	Quasi Experimental	Experiment	Observation	Other	TOTAL
Africa	18	1	4	8	-	31
L. America	26	-	-	-	4	30
M. East	8	47	3	-	-	58
India	96	1	56	10	4	167
Thailand	168	-	40	2	9	219
Malaysia	11	1	18	-	1	31
Philippines	22	3	24	-	4	53
TOTAL	349	53	145	20	22	589

*It was not possible to detect in each case how many of these were correlational, but at least for India, Latin America, Malaysia, and the Middle East, over 70% were correlational studies.

TABLE 5: NUMBER AND TYPE OF STATISTICAL ANALYSIS IN L. AMERICA,
INDIA, AND MALAYSIA

	<u>Bi-Variate Techniques</u>			<u>Multivariate Techniques</u>				Other	TOTAL
	T & Cr Tests	Cross Tab.X ²	Simple Correl. & Regression	Analysis Variance	Multiple Regression	Factor Analysis	Analysis Covarian		
Latin America	1	7	8	2	5	2	-	2	27
Malaysia	18	8	10	9	10	8	12	5	80
India	46	2	15	9	-	17	9	65	163
TOTAL	65	17	33	20	15	27	21	72	270

TABLE 8: TEACHER ABILITY, KNOWLEDGE, LANGUAGE OF INSTRUCTION RELATED TO TEACHING SITUATION

	ABILITY			KNOWLEDGE			LANGUAGE OF INSTRUCTION											
	Number of			Number of			Number of											
	Studies	+ Rel.	Sign 0.05 or less	Studies	+ Rel.	Sign. 0.05 or less	Studies	+ Rel.	Sign. 0.05 or less									
	%	%	%	%	%	%	%	%	%									
Africa	-	-	-	1	5.3	1	7.7	-	-	-								
India	7	77.8	12	85.7	12	-	92.3	7	36.8	5	38.5	5	-	45.5	1	100.0	-	-
L. America	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Malaysia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
M. East	-	-	-	-	4	21.1	1	7.7	-	-	-	-	-	-	-	-	-	-
Philippines	2	22.2	2	14.3	1	7.7	-	-	-	-	-	-	-	-	-	-	-	-
Thailand	-	-	-	-	7	-	-	6	36.8	6	46.1	6	54.5	-	-	-	-	-
	9	14	13	19	13	11	7											

TABLE 9: TEACHER PERSONAL FACTORS RELATED TO PUPIL OUTCOMES

	SEX			AGE			PERSONALITY			SES														
	Number of			Number of			Number of			Number of														
	Studies	+ Rel.	Sign. 0.05	Studies	+ Rel.	Sign. 0.05	Studies	+ Rel.	Sign. 0.05	Studies	+ Rel.	Sign. 0.05												
	%	%	%	%	%	%	%	%	%	%	%	%												
Africa	1	33.3	1	50.0	1	50.0	1	20.0	1	33.3	1	33.3	-	-	-	-	-	-						
India	1	33.3	1	50.0	1	50.0	1	20.0	1	33.3	1	33.3	4	44.4	21	80.8	-	-	-					
L. America	-	-	-	-	-	-	3	60.0	1	33.3	1	33.3	2	22.2	2	7.7	2	7.7	2	100.0	2	100.0	1	100.0
Malaysia	1	33.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
M. East	-	-	-	-	-	-	-	-	-	-	-	-	2	22.2	2	7.7	2	7.7	-	-	-	-	-	
Philippines	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Thailand	-	-	-	-	-	-	-	-	-	-	-	-	1	11.2	1	3.8	1	3.8	-	-	-	-	-	
	3	2	2	2	5	3	3	3	9	26	5	2	2	2	1									

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TABLE 10: TRAINING AND EXPERIENCE RELATED TO PUPIL OUTCOMES

	EXPERIENCE			QUALIFICATIONS			METHODS OF PRE-SERVICE			IN-SERVICE											
	Number of			Number of			Number of			Number of											
	Studies	+ Rel.	Sign. 0.05	Studies	+ Rel.	Sign. 0.05	Studies	+ Rel.	Sign. 0.05	Studies	+ Rel.	Sign. 0.05									
	%	%	%	%	%	%	%	%	%	%	%	%									
Africa	2	11.8	-	-	2	11.1	1	10.0	1	11.1	1	50.0	1	50.0	1	50.0	-	-	-		
India	-	-	-	-	-	-	-	-	-	-	1	50.0	1	50.0	1	50.0	-	-	-		
L. America	11	64.7	9	90.0	5	100.0	8	44.4	3	30.0	2	22.2	-	-	-	3	75.0	1	50.0	1	50.0
Malaysia	4	23.5	1	10.0	-	-	4	22.2	2	20.0	2	22.2	-	-	-	-	-	-	-		
M. East	-	-	-	-	1	5.6	1	10.0	1	11.1	-	-	-	-	-	-	-	-	-		
Philippines	-	-	-	-	2	11.1	2	20.0	2	22.2	-	-	-	1	25.0	1	50.0	1	50.0		
Thailand	-	-	-	-	1	5.6	1	10.0	1	11.1	-	-	-	-	-	-	-	-	-		
	17	10	5		18	10	9		2	2	2		4	2	2						

TABLE 11: TEACHER ABILITY, KNOWLEDGE, LANGUAGE OF INSTRUCTION
RELATED TO PUPIL OUTCOMES

	ABILITY			KNOWLEDGE			LANGUAGE OF INSTRUCTION		
	Number of		Sign. 0.05	Number of		Sign. 0.05	Number of		Sign. 0.05
	Studies	+ Rel.		Studies	+ Rel.		Studies	+ Rel.	
Africa	-	-	-	-	-	-	1	1	-
India	-	-	-	1	1	1	-	-	-
L. America	1	-	-	-	-	-	-	-	-
Malaysia	1	-	-	1	-	-	-	-	-
M. East	-	-	-	1	-	-	-	-	-
Philippines	-	-	-	-	-	-	4	4	-
Thailand	-	-	-	-	-	-	-	-	-
	2			3	1	1	5	5	

TABLE 12: NUMBER OF STUDIES SHOWING RELATIONSHIPS BY VARIABLES AND SCHOOL LEVEL

Teacher Factors	Related to Teaching Situation				TOTAL	Related to Pupil Outcomes				TOTAL
	Primary	Secondary	Both	T. Training		Primary	Secondary	Both	T. Training	
Sex	5	11	3	7	26	2	1	-	-	3
Age	1	7	1	-	9	1	1	-	-	2
Personality	4	21	1	1	27	1	6	1	1	9
SES	3	9	2	4	18	1	-	1	-	2
Experience	4	17	1	1	23	8	5	1	-	14
Qualifications	11	11	-	1	22	9	6	3	-	18
Methods of Teacher Training										
Training (Pre-service)	10	8	-	2	20	2	-	-	1	3
In-service Training	13	4	1	4	22	3	2	-	-	5
Ability	3	13	-	-	16	-	-	-	-	-
Knowledge	9	8	-	-	17	1	-	1	-	2
Language of Instruction	-	-	-	-	-	8	1	1	-	10

TABLE 13: NUMBER OF STUDIES RELATING SCHOOL SYSTEM VARIABLES TO TEACHING SITUATION AND PUPIL OUTCOMES

	TEACHING SITUATION			PUPIL OUTCOMES			TOTAL
	Primary	Secondary	Both	Primary	Secondary	Both	
Location of School	5	1	2	1	-	-	9
School Administration Factors	1	4	3	2	2	-	12
Subject Matter Taught	-	2	-	-	-	-	2
School Level	1	2	7	-	-	-	10
Teaching Resources (or lack of them)	1	12	-	2	1	-	16
Curriculum, Examination System	-	1	1	2	-	-	4
Teacher Incentives, Salary Perf., Stability	3	2	1	2	1	-	9
Student/Teacher Ratio	1	1	-	3	3	-	8
Pupil Characteristics	-	1	-	-	2	-	3

TABLE 14: NUMBER OF STUDIES RELATING TEACHER ATTITUDES TO TEACHING SITUATION AND PUPIL OUTCOMES*

	TEACHING SITUATION			PUPIL OUTCOMES			TOTAL
	Primary	Secondary	Both	Primary	Secondary	Both	
On Educational Issues	-	8	-	-	-	-	8
On Socio-Political Issues	1	5	-	-	-	-	6
Social	-	13	-	-	-	-	13
Expectations of Students	-	-	-	7	-	-	7

*Most of these studies were carried out in India.

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APPENDIX III - CASE STUDIES

The Process of Research: Case Studies

One of the purposes of this review was to gain some insight into the process by which research is carried out, diffused and implemented in developing countries. With this purpose in mind, reviewers were asked to include a more detailed description of a research project that might shed some light on the process issues involved. Perhaps it is a reflection of the difficulties of gaining information on such issues that only three of the reviewers were able to include a case study, and that one of these, was not more than detailed description of a research project, its design and results.

However, it may be useful to synthesize here the relevant aspects of two of these case studies, emphasizing "process aspects" rather than research results.

1. "Development of Mechanisms and Instruments for the Assessment and Improvement of Teaching Practice at the Primary Level". (Dept. of Curriculum and Instruction, Faculty of Education, Srinakharinwirot University, Bangkok, Thailand).

The main characteristic of this project was its policy-oriented purpose and the varied character of its research design, which included a phase of implementation.

Regarding its purpose, it was designed to produce results that might affect or rather improve the quality of student teacher practice for rural primary schools, in all Thai teacher training colleges. Particularly it sought to: (a) develop instruments and mechanisms for improving the supervision of student teaching, (b) develop professional programmes for primary school teachers prior to student teaching; and (c) develop an inservice programme for effective instruction in rural primary schools. The main assumption of the study was that primary school teaching effectiveness is a reflection of the professional programmes in teacher training institutions and particularly, of student teacher practice.

The research design included two sets of sub-projects carried out concurrently.

The first one was a set of experiments in which different techniques and mechanisms of training were tried out and its effects verified in actual student teacher practice. These involved trainees at different teacher colleges from different regions in Thailand. The experimental groups were trained through means of instruction on how to construct and use learning packages.

The second sub-project was carried out at Srinakharinwirot University as a pilot study on the introduction of the following innovative practices: (a) the use of microteaching to prepare teacher trainees prior to student teaching, (b) the assignment of tasks during student teaching; (c) preparation of co-operating teachers; (d) development of a handbook for the supervision of microteaching and student teaching (subsequently published by Unesco).

The results of these projects emphasized the value of mechanisms and instruments to improve teaching practice such as microteaching, systematic observation, sensitivity training and simulation. It also found that inservice programmes for college supervisors and co-operating teachers were effective mechanisms for improving the quality of teacher trainees.

The study was also able to detect abilities needed to be developed in pre-service teacher education: teaching skills, classroom management and discipline, preparation of instructional materials, child study skills, and community study skills.

The author of the review stated that the study will in fact affect the training of college supervisors and cooperating teachers as part of their inservice programmes. The Department of Curriculum and Instruction, Srinakharinwirot University will use the findings with subject specialists and media specialists in order to develop learning materials and training programmes. It will work on developing teacher trainees competencies for studying the individual child, and competencies for community study and utilization of local resources. The University's Curriculum and Instruction Department also hopes to stimulate the development of co-operating schools into teacher education centres, where teacher trainees would receive further training, and where new teaching learning practices and other educational innovations would be demonstrated and disseminated.

Finally the University hopes to use the findings to help train college supervisors of other teacher education institutions so that the instruments and mechanisms developed in the project be widely disseminated.

As can be seen, this project offers a number of promising avenues for implementation, that in fact, are already being put into practice. It is clearly a case of a University based project, but one which can be of ample relevance to policy and to educational change.

2. Development of Tests for Evaluation and Selection of Teachers; the Test Project. (Test and Research Division of the West African Examinations Council, Lagos, Nigeria).

The stimulus for deciding on a project aimed at developing tests for selecting and evaluating teachers, was the dissatisfaction with the existing system as voiced by public opinion (newspaper articles), the results of a survey on needs of teacher training which emphasized the deficiency of selection procedures, and the opinions on this matter held by Ministry of Education officials.

The specific objectives of this project were to: (1) develop tests for evaluation of teacher performance with the purpose of advancement, certification, and self-evaluation; (2) develop aptitude test for selection of trainee teachers; (3) examine the extent to which teacher training curricula reflects criteria of effective teaching generated by base-data collected in the test development aspects of the project.

From the beginning, this project involved Ministry of Education officials and teacher trainers, and it was jointly decided that the first phase should deal with issues of teacher performance evaluation. The case study reports only on the development of teacher performance evaluation. The research proposal itself was drawn up and discussed by the Research Committee of the Test Development and Research Unit. After amendments, it was sent to all heads of departments, institutes and colleges of education, all ministries in the 19 states plus the Federal Ministry of Education of Nigeria. They were asked to comment freely on the usefulness, timeliness, scope and adequacy of the proposal, and to make suggestions for its improvement. With the proposal was a letter soliciting their involvement in the project. Based on suggestions received, the final draft of the proposal was produced.

The design included the use of the Critical Incident Techniques (Flanagan 1962) and the Critical Incident Form (CIF) to identify criteria of effective teaching in the indigeneous cultural setting of Nigeria. The CIF stimulates respondents to report "incidents" they witnessed which helped their learning. Incidents were collected in a pilot study from a random sample of primary school teachers and pupils, fifth formers, secondary school teachers and college of education students. As a result of this try-out it was decided that the method was useful, and again the Critical Incident Form was used (with some modifications) to collect incidents from a stratified random sample of 5120 subjects in primary, secondary and tertiary schools in Lagos State, Nigeria. The subjects were pupils, teachers, headmasters, undergraduates and lecturers. The incidents were classified by graduate students and university lecturers, and as a result the Teacher Performance Evaluation Test (TPET) was developed. It consisted of five categories (with 108 items) noting aspects of teacher classroom behaviour that had been rated as effective in terms of producing learning by the sample chosen.

The validity and reliability of the tests was assessed through a combined method of observation and experimentation. Thirteen teachers of different qualifications, teaching all subjects in secondary school were observed during a period of two weeks. The observers were a non random sample of seven inspectors of education, fifteen teachers and 620 students. The fact that large scale observation was new in West Africa, raised problems, as many teachers were reluctant to allow themselves to be observed. Problems generated on this account were solved in a series of meetings held first with staff and student observers at which the school principal was always present. The project's aims, the logistics of observation were discussed and amendments made which ensured that participants were satisfied. The researchers met with teachers to be observed separately, and the research instrument was kept secret to them, in order to avoid bias in the measurement. Most of the time during the meeting was spent breaking down their suspicion and reluctance to participate in the study.

The field work which lasted two weeks produced completed TPET from students (1335), from inspectors of education (105) and from teachers (457).

The data is now being processed, but it is hoped that its results will be widely used. Status reports on the project have already been discussed at a number of international conferences.

Both the described projects aim at providing guidelines for policy decisions on teacher training, teacher selection and teacher evaluation. These are extremely important points of concern for those responsible for teacher policies. It is not known from the projects how widely the results will in fact be used, but in the case of the Thai study there are provisions for implementation, and perhaps through a longitudinal study the effectiveness of such implementation might be assessed. The Nigerian study equally offers promising avenues for assessment of teacher performance and for selection. Longitudinal studies might also prove the usefulness of the findings when they are finally known and implemented.

APPENDIX IV - FRAMEWORK

FRAMEWORK FOR THE STATE-OF-THE-ART REVIEWS ON TEACHER EFFECTIVENESS

The overall objective of these Reviews is to seek out and synthesize research relating to Teacher Effectiveness and to assess whether and how well this research addressed itself to issues that concern policy-makers.

I. Scope of the Review

The reviews should have as wide a coverage as possible in order to ensure that the summary of results does take into account the variety of situations in less developed countries. In this sense, the reviewers should look for published and unpublished studies on teachers, in a variety of languages and from sources not only educational but from related fields. These studies might be theses and research pieces done in research institutions (public, private). The time for each review should span the period from the mid-sixties to the present (for Africa, since independence). Regarding levels and type of education, it should include studies dealing with:

- Pre-primary education: formal
- Basic education: formal and non-formal (children and adult education)
- Secondary education: formal academic and vocational
- Tertiary education: should be excluded except in the case of teacher education.

II. Theoretical framework of the studies

There should be a discussion on the various definitions and assumptions regarding teacher effectiveness which are present in the studies, and should be related to theoretical discussions in the field.

It also might be useful to relate these views to the situation of developing countries, where different needs and targets might suggest a broader view of the teacher's role than is usually assumed for school settings in developed countries.

III. Criteria for selection of studies

Only studies of a relational type, involving teacher variables, should be included.

Studies should be selected in terms of the rigour of their designs and methodology, but admitting a variety of approaches such as case studies, observational studies, action research as well as experiments and correlational designs. Purposes on these studies should be clearly stated, there should be a description of population and sample (if relevant), a description of methodology and instruments used and a summary of findings.

Studies should not be excluded because of lack of a high degree of reliability (but this should be discussed in the appropriate section of the Review), nor should they be excluded because of small samples.

IV. Framework for the analysis of results

The following aspects might be considered for the categorization of results:

- (a) Conditioning factors of teacher effectiveness
- (b) The teaching situation
- (c) Outcomes of the teaching process

These three aspects might appear in the different pieces of research reviewed in a pattern such as in Figure 1 (see page 13).

Thus, there might be four types of possible categories of studies:

- (a) Factors that condition the teaching situation (with implicit implications for outcomes)
- (b) Factors as they affect the teaching situation and outcomes
- (c) Teaching situation as it affects outcomes
- (d) Factors as they affect outcomes.

The above figure and categorization indicates an approach to the studies in terms of determinants and outcomes, as shown in Figure 1.

Definition of categories

A. Factors. These are defined as those conditions lying outside the teaching situation which may affect teacher performance and teacher effects. They may be:

Teacher factors:

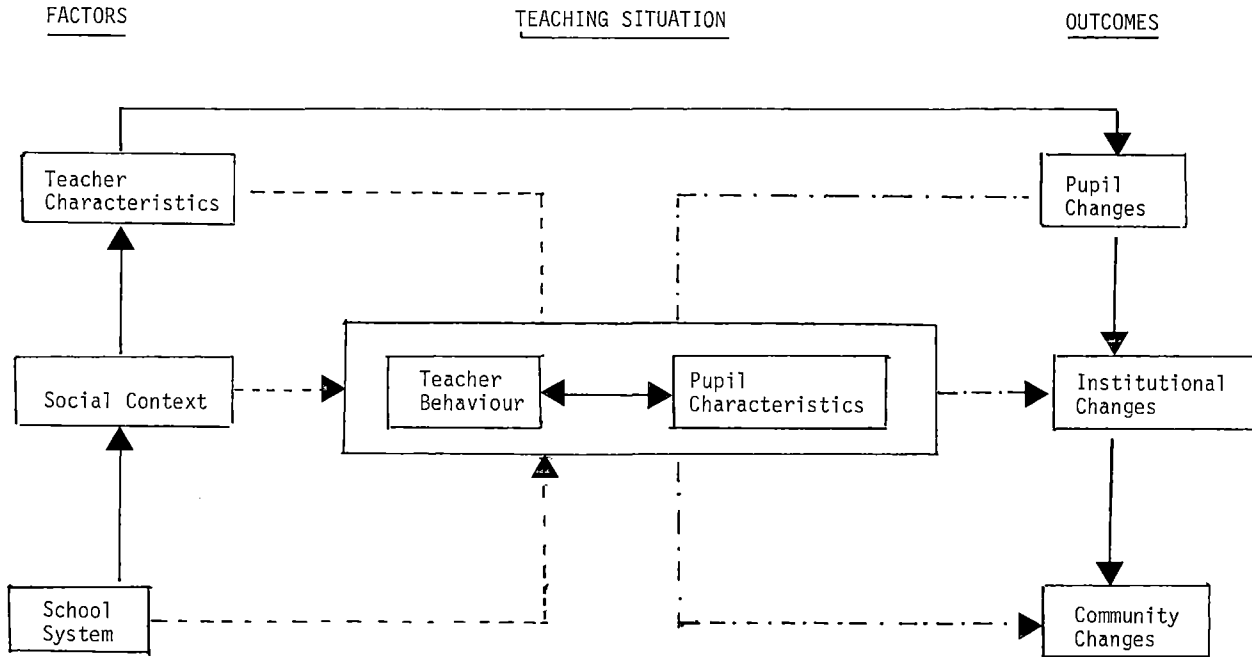
- (1) Personal: sex, age, personality, socio-economic status, mother-tongue, intellectual ability, fluency in language of instruction, etc.
- (2) Social: attitudes towards various issues (political, religious, educational, etc.)
- (3) Professional: expectations, role-concept, etc.
- (4) Training (academic and professional): type, methods, inservice, length, level of knowledge.
- (5) Experience: duration and type.

Social context: Social, cultural and economic stage of development of the community; differences between urban, semi-urban and rural settings; community valuation of teachers, mobility of population (e.g. students), etc.

School system: Administrative structure, job scale, teacher selection and placement, teacher salaries and incentives, resources, school organization, class size, use of community resources, nature agency employing teachers, examination system, medium of instruction, etc.

B. Teaching Situation. This is understood as the behaviour and attitude of teachers and pupils in an educational setting. Among the variables here are the following (see Fig. 2):

FIGURE 2



Teacher behaviour and attitudes:

- (1) Teaching styles
- (2) Modes of interaction (authoritarian/democratic, directive/non-directive, teacher-centred/pupil-centred, etc.)
- (3) Language used by teacher (cultural distance or proximity to pupils).
- (4) Teacher expectations of pupils.
- (5) Student "engaged time"
- (6) Teacher attitudes to profession, school subject; mental health, job satisfaction.

Pupil characteristics, behaviour and attitudes

Age, school level, ability, cognitive styles, socio-economic condition, health, family situation, readiness, attitudes to the educational situation, etc.

C. Outcomes. The expected outcomes which should indicate teacher effectiveness might be grouped in three categories:

- (1) Pupil individual changes in achievement and attitudes
- (2) Institutional changes (school and/or system)
- (3) Community changes (due to teacher involvement)

V. Outline for the Reviews

Each review should approximate the following outline:

1. Introduction.

Discussion of related issues regarding teachers which are of concern to policy makers in the particular region. Statement and discussion of assumptions in the various studies reviewed.

2. Analysis and reporting of research results.

This should be done using the above framework.

3. Discussion of results.

When discussing and summarizing research findings weight should be given to those studies judged to be of the higher quality. This section might include two parts:

(a) Substantive discussion of the summary results of the studies, focussing on the following points:

- How do results relate to the assumptions in the studies?
- How do results compare across countries and possibly, when it is a replication, how do results compare with those from the original study?
- What areas appear neglected? What gaps in research (this requires reference to the framework and to the needs of policy makers)?
- Can an "effective" teacher profile be deduced from the results?

(b) Methodological

- Discussion of methods (designs, procedures, instruments, mode of data analysis, reliability, etc.)
- Opinion on the quality of the studies reviewed?
- What methodologies appear less used?
- What possible explanations for methodological strengths and weaknesses.

4. Implications

In this section there should be a discussion of the implications of the results for policy and future research:

- (a) For policy: (1) Educational: How would changes in training, teacher incentives, classroom conditions, use of community for teaching, social and economic measures affect the quality of education?
- (2) Economic: What would be the implications of the above changes in terms of costs?
- (b) For future research: In view of the above there should be suggestions regarding priority areas for research, which are both researchable and potentially important for the improvement of the quality of education and/or for reducing costs.

5. Summary.

6. Appendices.

Include summary tables of research reviewed, and any other information which is thought pertinent.

