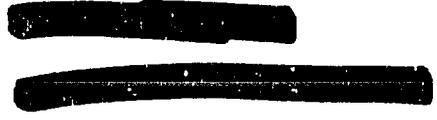


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Research and Evaluation on the Quality  
of Primary Education  
in Thailand

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## Executive Summary

This document is intended to define quality indicators for primary schools in Thailand and to encourage a common understanding of the elements underlying quality among researchers, policy-makers, and planners participating in the various BRIDGES projects. Our paper describes the conceptual framework for research currently under way in Project BRIDGES in Thailand. A substantial research literature conducted in Thailand is reviewed and synthesized to make available knowledge about the sources of primary school quality.

From our study of the attributes of primary school quality in Thailand, we identified two kinds of problems which can undermine quality: those related to the teaching-learning process, and those related to the school management process. Problems in the teaching-learning process are reflected in poor achievement levels, especially in mathematics and life-experience subjects, and in high repetition rates. In part, these results stem from lack of student readiness and poor student health and malnutrition. However, in part, they result from weaknesses in the teaching-learning process in primary school classrooms.

At the same time, the school management process is not yet sufficiently effective in promoting primary school quality. By school management, we mean the planning system, the information system, and the monitoring system. Improvements in the management system are needed to correct an imbalance in teacher distribution and to improve personnel development. Even though many programs have been conducted to develop teaching personnel, follow-up activities to evaluate the impact of these

programs at the implementation stage have been rare. Moreover, the management system faces special difficulties in trying to improve the quality of small primary schools which are large in number and spread throughout the country.

Apart from these two main problems, school quality is affected by social and economic factors. However, educational policy cannot directly influence these factors. Therefore, research on primary school quality should focus on policy variables that can be useful in monitoring and improving school quality. At the same time, studies of such policy variables must control or adjust for effects of social and economic factors.

When considering the impact or success of any policy to improve quality, it is necessary to see whether that policy really affects practice at the school level, especially in the classroom. For this reason, the teacher is an important agent for transforming the intentions of policy into actual changes in practice. Moreover, Thailand's large teaching force is a vast educational resource, which, if truly developed, could significantly contribute to improving school quality.

Policies to improve the outcomes of teaching should be evaluated both in terms of efficiency and effectiveness, which, taken together, may be defined as 'teacher productivity.' The level of teacher productivity indicates one aspect of the quality of a school which should reflect student development in all aspects. In the past, the evaluation of student quality tended to emphasize only the cognitive aspect. However, cognitive development alone is not sufficient to define quality because student quality includes also personality, morality and ethics, ability to live in harmony, to work as a group, and to understand democratic values. In part,

these characteristics are instilled by teachers and reflect the performance of teachers. These non-cognitive outcomes represent important and explicitly stated features of Thai policy regarding primary education.

Teacher productivity is determined both by the performance of the individual teacher and by the management of a school. These two factors encompass many inter-related variables. Regarding teacher performance, it is necessary to study the background knowledge of the teacher, the availability of teaching facilities and materials, teaching techniques, use of measurement and evaluation, and teacher's commitment and morale. For the school management aspect, quality indicators include principal's background and experience, efficiency in management, participation in in-service training, supervision, moral support for teachers, and also the management of school clusters which are intended to improve academic performance.

We recommend that the relationship between these factors and primary school quality be studied in a systematic way in order to discover the causes of the problems and to suggest alternative policies. Some key variables should be further developed into standardized indicators of primary school quality to be used as part of a continuing effort to improve decision-making and policy formulation.

Variables and indicators for evaluating primary school quality are classified by two factors: the teaching-learning process and the school management process. Within these two factors, variables and indicators are further classified according to the components of the educational system, namely, the input component, the process component, and the output component.

The input component includes, first, the need for educational provision as stated in official documents which articulate Thai educational philosophy, curriculum, and broad educational policies. The second type of input is the school-age population which sets the quantitative demand of education. The third type of input includes the educational resources to be used for education provision, such as personnel, school buildings, materials, equipment, and budget. The input indicators should reveal the adequacy and equity of educational provision among the schools.

For the process component, it is more difficult to identify quantitative indicators, because the teaching-learning process and the management process are highly complex, including interaction among administrators, teachers, students and parents. Therefore, interview techniques and observations may have to be introduced to enrich the information base. The goal of collecting process information is to assess the efficiency of both the teaching-learning activities and the management process. For the output component, both quantitative and qualitative outcomes will be considered. Quantitative outcomes include achievement in every subject area and school efficiency regarding completion, drop-out, and repetition rates. Considering school efficiency as well as quality will aid interpretation of the research findings and will make policy recommendations more viable. Qualitative outcomes include the moral and ethical development of the students, and the skills they need for work and community participation.

Information about the three educational components, however, is not enough to explain the whole scenario of the quality problem. A database should also contain information about the social and economic status of each

locality, including population size, distribution of occupations, religious beliefs, language, and availability of public facilities. Although these are not directly influenced by educational policy, educational planners and decision-makers need to understand these environmental conditions prior to choosing among alternative policies.

## Research and Evaluation on the Quality of Primary Education

### 1. Background concerning the problems of educational quality.

After the change of the former educational system from 4-3-3-2<sup>1</sup> to 6-3-3<sup>2</sup> in 1978, universal and compulsory education expanded from four to six years of primary schooling. The new educational system is intended to be more flexible, practical and responsive to the needs and developmental stages of learners. Curricula have been revised accordingly to ensure that learners possess fundamental knowledge and skills necessary for their daily living. Despite the efforts made since the Fourth National Education Development Plan, however, broad problems related to primary education still prevail.

The first broad problem concerns the teaching-learning process. Repetition rates and achievement levels in various subjects are not yet satisfactory. This weakness may reflect, in part, lack of teacher understanding of the new curriculum, unavailability of textbooks and instructional materials, and insufficient in-service training courses.

Poor health and nutrition also undermine the teaching-learning process. Though malnutrition has not been sufficiently extreme to threaten student lives, it has affected student growth both physically and mentally. Malnutrition has commonly been found among students from poor, rural areas and those from low income families in Bangkok. A good number of students

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<sup>1</sup>seven years of primary education comprising four years in lower cycle and three years in upper cycle; and five years of secondary education, comprising three years in lower cycle and two years in upper cycle.

<sup>2</sup>six years each for both primary and secondary education, with the latter broken into lower and upper cycles, each comprising three years.

go to schools without having any breakfast and without money for lunch, resulting in less concentration in learning and lower achievement levels.

The second broad problem facing primary education involves the educational administration system. The universalization of primary education has not yet been fully accomplished. Because most primary schools are small and located in rural areas, the number of students enrolled has not been sufficient for every school in a community to offer Grade 5 and 6 classes. In addition, personnel management has not allowed teachers in remote areas to gain privileges in their career development and welfare. The demand for more school supervision remains unmet nationwide, reducing educational personnel's enthusiasm and motivation. Key resources - teachers, instructional materials and equipment-have not been equitably allocated. Special education for the physically and mentally disabled is still insufficient.

The third broad problem facing primary education relates to the budget. National budget allocations for accelerating the improvement of the quality of primary education have been inadequate. More budget is still needed for the provision of instructional materials and equipment; the organization of in-service training courses for teachers and administrators; and the development of a system of supervision.

The fourth broad problem is the persistence of inequality of educational quality (Office of the National Education Commission, 1981). Discrepancies in educational quality between geographical regions remain. Students in Bangkok have gained higher educational achievement in each subject than students from other regions. Students from the Central and Southern Regions are next on the list while the academic performance of

those in the North and Northeastern regions has been poorest. A disparity between schools in urban and rural areas has also been apparent: urban students have achieved more than rural students. There are also discrepancies in quality between types of schools under different administrative organizations.

These inequalities of educational outcomes appear to result in part from inequities in the effectiveness of the management system. The uneven distribution of personnel has led to differences in the student-teacher ratios across regions. For instance, the Northeastern provinces have fewer teachers than those in the Central Region. Female teachers and experienced teachers have not been assigned to the remote areas. Moreover, performance of the supervising system at all levels has been uneven. Hence, it has been rather difficult for primary schools to achieve parity in educational standards. Inequities stem also from differences in school size. Some small schools have insufficient numbers of teachers to cover every grade. As a result, the available teachers have not had enough time for lesson preparation and evaluation. Small schools are also inefficient: not only do small schools display lower achievement than larger schools, but also educational expenditures per head in small schools are higher than in the larger schools.

## **2. Improvement of the quality of primary education during the past decade**

During the implementation of the Fifth National Education Development Plan, both the qualitative and quantitative aspects of education were emphasized. The primary education curriculum of 1978 for grades 5 and 6 was revised and teachers' manuals corresponding to the new

developed. Training courses for administrators, teachers, supervisors and other educational personnel were organized under the staff development program. Textbooks, instructional materials and equipment were provided. In primary schools, promotion of health through the school lunch program was encouraged so as to enable students to have nutritious food. Several demonstration projects were initiated and implemented, including "Democratic Leaders and Values Education" and "The Development of Possible Measures to Accelerate the Quality of Primary Education."

Both public and private agencies are responsible for the provision of primary education. In 1985, of all the 33,767 primary schools, 31,210 schools were under the jurisdiction of the Office of the National Primary Education Commission; 199 schools under the Department of General Education, Department of Teacher Education, Ministry of University Affairs, and Border Patrol Police Headquarters; 899 schools under municipalities and Bangkok Metropolitan Administration; and 1,427 were private schools.

The Fifth National Education Development Plan aimed "to expand compulsory education to all the sub-districts in the academic year 1982." On the average, there was one primary school per two villages. Because primary schools were spread all over the country, planners reasoned that these schools could possibly serve as governmental agencies for rural and social development. Investment in primary education thus was geared towards generally improving the quality of life.

In conformity with the 1980 Primary Education Act, the ONPEC had identified strategies to increase school enrollment by initiating forms and patterns of educational provision to suit the conditions of each locality, including for example, mobile classrooms, mobile teachers and provision of

bicycles for students on a loan basis. By 1985 about 97% of the students were enrolled in primary schools.

During the past decade, primary school quality was identified as the major goal of policy. Yet despite serious efforts, by 1981, 19% of the first graders nationwide were repeaters with up to 35% in some areas. It was found that most repeaters were not physically, emotionally and intellectually prepared before starting their formal schooling. Hence, the Office of the National Primary Education Commission (ONPEC) launched a project to prepare children for school one year prior to beginning their formal education. Partly as a result of this effort, the repetition rate of the first graders declined to 12% in 1984. By 1984, the repetition rate of students at all levels was 5%. However, it was found that grade 6 students achievement level was unacceptably low in every learning area. Average scores ranged between 40-55% on tests for which 50% was considered the minimum standard. Mathematics achievement was the lowest of all. Only 11% of the students had scores higher than 50%.

The ONPEC has sought to improve achievement by providing its schools, school clusters and other offices under its jurisdiction with instructional materials, equipment and necessary facilities to enhance the effectiveness of the teaching-learning process. In addition, ONPEC has introduced educational innovations and new technologies both to upgrade quality and ensure cost effectiveness, and has launched inservice training programs to increase teacher knowledge. ONPEC simultaneously worked to improve students' health since approximately 50 percent of the students did not have satisfactory health according to the standard set by the Ministry of Public

Health. ONPEC reasoned that poor health conditions were an important cause of depressed student achievement.

### 3. Current problems and needs for quality improvement during the Sixth National Education Development Plan

Based upon more recent research studies conducted in connection with the implementation of primary education in the past decades up to the present, major dimensions of the education system became the targets of reform in the Sixth plan. These dimensions included student achievement, school administration, and student health.

#### 3.1 Achievement, School Efficiency and Health

3.1.1. Achievement. Considerable research suggests that achievement levels were not satisfactory in every learning experience. The ONPEC's 1985 assessment of the sixth graders nationwide found that:

- the average scores were 56.84% in Thai language and 36.52% in mathematics respectively (again, 50% is the minimum standard),
- average scores were 45.09% in life experience subjects and 57.0% in work-oriented subjects
- average scores were judged unacceptably low in character building subjects and sanitary habits.

Repetition rates, though significantly reduced since 1980, remained unacceptably high in 1985. The average repetition rate was 4.62%, meaning that 4.62% of the students failed to pass learning objectives or displayed insufficient attendance at school. For the first graders, the repetition rate was higher at 8.61%, which was primarily a result of students' lack of readiness for learning.

3.1.2. Efficiency. The teaching-learning process was not efficient. In 1983 only 64 percent of students finished primary education within six years.

3.1.3. Health. Too many students continued to have health problems. About 30% of the primary school children failed to demonstrate acceptable health and 40-50% suffered from malnutrition (Research and Development Division, Office of the National Primary Education Commission, 1985; Nutrition Division, Health Department, Ministry of Public Health, 1985).

### 3.2 Problems concerning administration and support.

The administrative system plays a crucial role in allocating educational resources. Adequate performance in this role is an especially critical need when available resources are severely limited. The educational administration and management system oversees the planning and information systems and supervision, public relations and personnel. The existing problems are as follows:

- 1) The present administration and management system for primary education does not effectively improve student learning. Administration, planning, information collection and use, allocation, and utilization of resources are not performed effectively and systematically. More serious problems are found in small primary schools which represent 89% of the schools nationwide.
- 2) The number of teachers is not equitably distributed. Schools with inadequate numbers of teachers tend to display poor student achievement whereas schools with excess teachers operate at unnecessary high cost.
- 3) There is a lack of systematic and effective coordination and

public relations in pooling public and private resources from both sectors to enhance student learning.

4) The supervision and monitoring systems have not yet achieved their goals in improving the teaching-learning process. The coverage of supervision has not been adequate or systematically organized. Effective instruments for supervision and monitoring purposes have not been provided.

5) Personnel management is not successfully enough planned and implemented. As a result, some educational staff do not adequately perform their responsibilities, and some staff have low morale and lack motivation.

6) Personnel development is not widely enough carried out. Since ONPEC is responsible for many staff but has a limited budget, it is not able to conduct training courses regularly all over the country. When it does, follow-up to discuss the impact of the training on teachers' daily work is lacking.

The National Education Development Plan emphasizes the need to accelerate the improvement of student learning in accordance with the 1978 Primary Education Curriculum by improving the teaching-learning process in every learning area; by emphasizing Thai language, mathematics, science and technology and health; by cultivating a sense of good citizenship, ethical behavior, and desirable character; and by providing basic skills to develop the economy and to strengthen the democratic society within a constitutional monarchy.

#### 4. Policy variables for improving quality

Hundreds of research studies had been conducted in Thailand to study factors related to the quality of primary education. However, often the variables investigated have been non-educational variables, in the sense

that they reflect economic and social aspects which cannot be influenced by educational policies. The research we shall consider is focused on policy variables for improving quality. Non-educational variables, such as those related to the infra-structure of a community, the profession of parents, the number of dependents in a family, although they are important variables which do influence student outcomes, will not be considered as the main focus for our research to improve school quality.

We view policy variables as those variables which can be changed by the planning process at the national level but which ultimately affect the institutional or school level. However, the translation of plans and policies into practice is very complicated and there are many variables which intervene at various stages. Hence, to evaluate any particular educational policy one must consider its school impact. Of course, teachers are mostly responsible for the teaching-learning process. Since changing teacher behavior is essential to the improvement of school quality we must consider how policies under consideration will affect teachers.

How policy affects teachers is also crucial for economic reasons. Among all educational resources, teachers represent the largest portion in terms of budget allocation. The investment on this component is so large that the most viable strategy for improving quality of primary education is to improve the efficiency of teachers. Our focus on teachers is heightened by the uniqueness of Thai circumstances. The average pupil-teacher ratio in Thailand is between 18:1 and 20:1, one of the lowest among developing countries. This ratio is unlikely to change much in the near future, considering the low birth rate. Therefore, teachers may be viewed as a vast potential resource for improving educational quality. The importance of the

teacher component is especially dramatic in a context where other resources such as physical facilities and equipment are relatively scarce.

It follows from both the educational and economic considerations that investments which fail to develop or to better utilize teachers will have only a marginal impact compared to those investments which hold promise for tapping this vast resource. In other words, one can evaluate a proposed educational policy largely by evaluating its potential for better utilizing teachers, that is for increasing teacher productivity.

Although teacher productivity may be viewed as an attribute of an individual teacher, it would be more useful to define it as a descriptor of a school. Defining teacher productivity this way expands the scope of consideration. Instead of focusing on teacher performance alone, teacher productivity can be influenced by management productivity in terms of school organization, interactions between administrators and teachers, academic leadership of administrators, and the interactions between the school and its immediate environment. Teacher productivity may thus be viewed as having two dimensions: 1) teacher performance and 2) school organization and management.

#### 4.1 Teacher Performance.

There are several variables related to teacher performance, including the teacher's academic background, in-service training, teaching experience, professional attitude, and teaching abilities and skills. In addition, the quality of teaching is determined by the appropriate utilization of teaching media and educational innovations. Experienced educators agree upon the need to improve teacher quality, especially in rural areas, because rural teachers are usually least trained. Whenever there are changes in

curriculum and teaching methods, teachers in rural areas are least able to change teaching behaviors. It is not surprising to see that most rural teachers still use lecturing as a major teaching method, and that the classroom atmosphere is too teacher-centered to allow actively engaged learning.

The utilization of teaching media and educational innovations plays a significant role in promoting student learning. Some innovations such as RIT (Reduced Instructional Time) or the alternate student-intake system, are aimed at alleviating problems in schools with inadequate numbers of teachers, especially in rural areas. (Under the alternate intake system, a school admits students every two years rather than every year. Each grade then includes two "year-classes" of children. Under RIT, textbooks and materials are designed to allow students to spend more time learning by themselves, and thus to require less time from teachers.) The provision of teaching materials and in-service training for teachers is believed to improve teacher performance and to change teachers behavior.

#### 4.2 School Organization and Management.

In many instances the quality of teacher performance largely depends on the quality of management. Even though school management may not directly affect student learning, it affects teacher performance. School management, on the other hand, is influenced by the administrative structure. Sometimes policy-makers seek to utilize the administrative structure to improve school quality. An example of this practice is the school cluster system which was introduced to increase efficiency in management and to promote academic performance. Schools within the same cluster are supposed to give academic assistance to one another and share educational resources. The school

cluster also has a role in supervision and evaluation. Similarly, the administrative structure above the school cluster, i.e., the district level, the provincial level, and the departmental level, may affect school quality through plans, policies, personnel provision, and budget allocations.

In most circumstances, a school principal plays a major role in establishing an internal management system which may influence the atmosphere that can affect the teaching-learning process within a school. Because of the principal's importance, key principal characteristics should be studied, including academic background, attitudes and strategies in management, and abilities in planning, management, supervision, and evaluation.

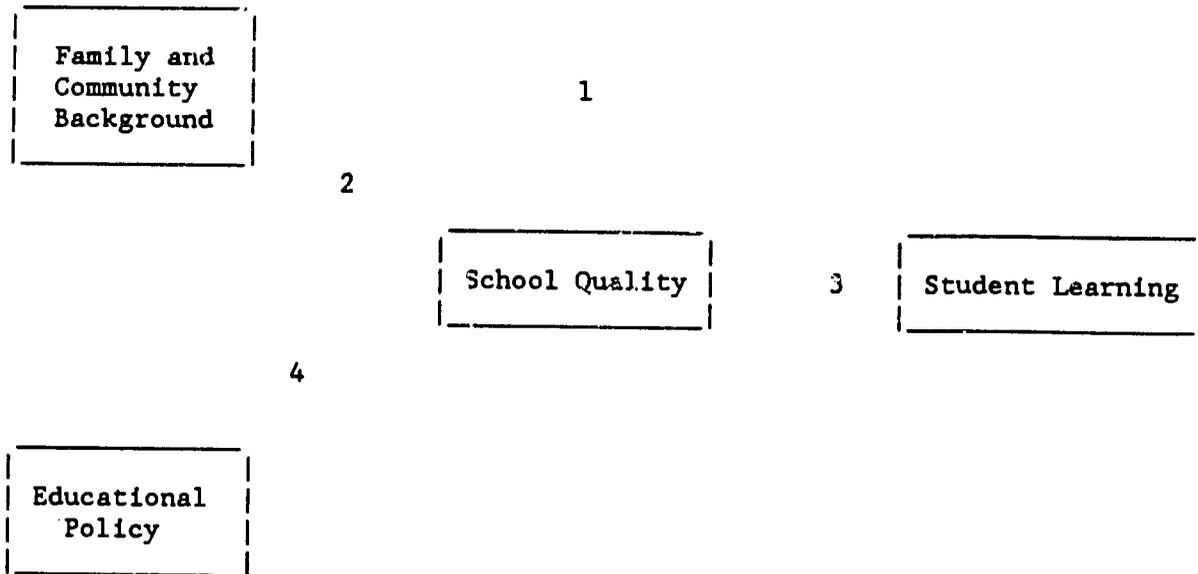
The interaction between a school and its community is very much influenced by the degree of the principal's determination to secure community participation in school activities. This is a sensible way to acquire more resources for school improvement. When parents understand school policies, they may be more willing to cooperate, thus facilitating continuation of academic learning at home to supplement learning at school. In this sense, the role of principal may be quite significant for the external efficiency of a school.

#### 4.3 Conceptual Model.

Our conception of how educational policy may influence student development is displayed in Figures 1 and 2. Figure 1 provides a macro view, showing how school quality fits into a broad picture of sources of student learning. Figure 2 is the micro view, in which one looks more closely inside the box labelled "school quality."

Figure 1

**Sources of Student Learning: The Macro View**



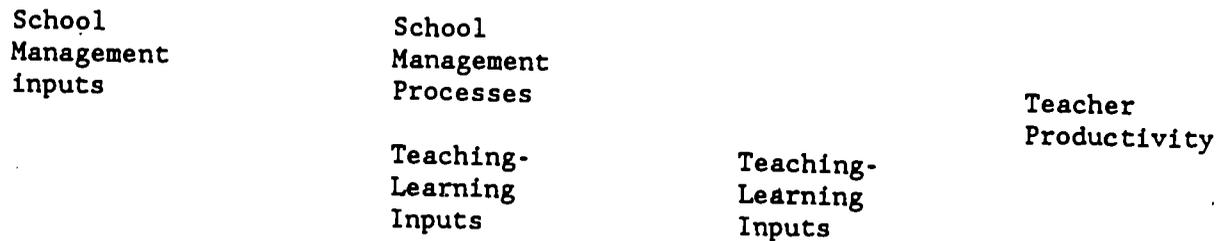
Note that in Figure 1, family and community background directly influence student learning (arrow 1) and indirectly influence student learning by influencing school quality (arrows 2 and 3). Educational policy cannot influence student learning directly, but can influence student learning indirectly, by influencing school quality (arrows 4 and 3). The goal of our research is to evaluate how alternative policies (arrow 4) can influence school quality. Hence, we need to understand which aspects of schooling that can be influenced by policy will have likely effects on student learning. (arrow 3). That is, we need to look inside the "black box" of school quality.

Figure 2 is our view of what is inside this "black box." Notice that there are two sources of school quality: school management and teaching-learning in the classroom. School management does not strongly affect

student learning directly, but may strongly affect student learning indirectly, by affecting teaching and learning in classroom.

Figure 2

Components of School Quality



The two components which influence school quality -- that is school management and teaching-learning -- may be further disaggregated in terms of inputs and processes. This idea is displayed in Figure 3. Inputs generally include the material resources (materials, equipment, facilities), the number and knowledge of teachers, administration and staff, the number and background of children, as well as the established policies, philosophy, and curricula. Processes generally involve the social relations into which people enter in order to use the inputs to produce outcomes. Hence, principal supervision is a process involving social interaction between the principal and the teacher and classroom teaching is a process involving social relations between the teacher and children. Educational policy directly influences inputs and may stimulate changes in processes. To understand how educational policies can improve schools, one needs to know how processes can make use of inputs to produce outcomes and how policy can influence both the available inputs and the ways in which processes make use of those inputs.

Figure 3

**School Management and Teaching-Learning Inputs and Process**

	School Management	Teaching-Learning
<b>Input</b>	Principal Background Principal Knowledge Staff Students Buildings and Facilities	Teacher Background Teacher Knowledge Students Materials and Facilities
<b>Process</b>	Principals' Time Allocation School Program Supervision	Teachers' Time Allocation Teaching Method Use of Materials Dedication and Morale Student Engagement

**5. Literature Review on Primary Education Quality**

Various educational agencies and personnel have attempted to assess primary education via their research with an objective to setting standard criteria or qualitative indicators of 'the good school' which can be used as guidelines for subsequent evaluative work on primary education. Jita-umphai (1983) studied the pattern of activities of outstanding primary schools and defined "an outstanding primary school" as a school which can efficiently organize various activities according to the objectives stated in the 1978 primary education curriculum. There are two types of activities: required activities, which should be student-centered, having a teacher as helper; and 'extra curricular activities', which aim to further develop the learning abilities of students according to their interests, personalities and

attitudes within a democratic framework. Both types of activities are necessary in order to implement the 1978 curriculum since one complements the other.

In viewing primary education, we shall consider the two components of the educational system mentioned in Figure 3, namely: inputs, and processes, as well as outputs (Amornwiwat, 1982).

The input component includes the philosophy and objectives of primary education, the curriculum, students, personnel, buildings and facilities, teaching materials and budget. The process component includes administration, teaching-learning activities, and measurement and evaluation. The output component includes both quantitative and qualitative outcomes.

Details of the three components are described below.

#### 5.1 The Input Component.

As primary education is the basic foundation of education for the majority of people, it is necessary to specify clearly the philosophy and the objectives of primary education to serve as guidelines for the implementing agencies. The curriculum should take into account the developmental stage of students as well as the various needs of different localities. To facilitate working toward the same goals, desirable characteristics of the student should be identified. Furthermore, the government must prepare capable personnel who are suitable for primary education; it must upgrade the personnel in response to scientific and technological progress; and it must provide both school buildings and budget.

5.1.1. Philosophy and objectives of primary education. The 1977

National Education Plan, Article 31, with regard to primary education

states:

"Primary education aims to develop learners in basic knowledge and skills, to maintain literacy and mathematics skills, to enable learners to earn their living according to age and ability, to develop good citizenship characteristics under the democratic system within the constitutional monarchy."

Primary education is to be provided continuously for a period of 6 years. In summary, having completed compulsory education, a learner is expected to become literate with regard to arithmetic and language skills which enable him to earn a living appropriate to his age and to become a good citizen with ethical behavior. Such desirable characteristics must be cultivated throughout the learner's 6-year period in a school. In so doing, the 1978 primary education curriculum states:

"The guidelines for primary education should be geared towards improving the quality of life; cultivating an awareness of being a Thai; developing concept of self-reliance, creativity, self-adjustment in society with an emphasis on diligence, honesty, frugality, endurance and discipline."

Concerning educational philosophy, Wittawate (1980) states that "philosophy helps educators in specifying educational goals or ultimate expectations of what education should achieve." Amornwiwat (interview in Jita-umphai, 1983) believes that "philosophy means the school's future expectations such as instilling the characteristics of diligence and responsibility. The objectives are the schools' short-term expected outcomes, for example, agricultural promotion." Primary schools should specify their own philosophy and objectives in accordance with both the national education philosophy and local needs.

5.1.2. The curriculum and desirable student behaviours. At present, primary schools employ the 1978 curriculum which stresses the practical application of school-experiences to everyday living. Hence, the curriculum aims to produce primary graduates with the desired moral characteristics of a Thai, with the basic skills and knowledge necessary for everyday living, and with the attitude needed to lead a peaceful life according to his or her religion and to be a good citizen.

The learning experiences aim at providing the knowledge and skills in 5 groups of learning areas:

- (a) basic skills, comprising Thai language and mathematics;
- (b) life experiences, including sciences, social sciences and health education;
- (c) character development, including ethics, physical education, arts, music, drama, boy scouts and girl guides, etc;
- (d) work-oriented experiences, involving practical work and establishment of a vocational foundation in areas such as agricultural work, housework, mechanics, handicrafts and other electives which are the main local occupations;
- (e) special experiences, comprising electives for grade five and six children including English and basic vocational courses.

Studies conducted after the implementation of 1978 primary education curriculum revealed that learners' abilities to analyze, synthesize, and cooperate in working as a group have not been sufficiently emphasized. Occasionally, the course content is not suitable to local conditions. Promanee (1983) analyzed the appropriateness of the curricular content to

local conditions of Songkhla Province. The results showed that only 58% of the lessons were in accordance with the needs of Songkhla.

Concerning life experiences for Grade 5, Thongman (1984) in a survey of the opinions of teachers, administrators and supervisors, suggested that learners rarely applied learning objectives in everyday life. Most of the course content was not appropriate to the learner's developmental stage and suggested activities were not suitable to the specified time schedule.

Regarding the goal of promoting good citizenship, Yodsapanya (1984) found that the grades five and six curricula typically emphasized physical capabilities and skills. Behaviours of a good citizen found in the curriculum were self-reliance, responses to others and to the environment.

Supeekit (1981) studied supplementary science text books at the primary level published in Thai between 1972-1979. She found that the majority of them were about the animal kingdom while books on geology could hardly be found. Most books also included scientific procedures and methods. Problem-identification was found most often while applications requiring re-examination of assumptions and problem-solving were found least often. These books covered synthesis even less often.

5.1.3. Students. Primary education is compulsory. According to the Primary Education Act, all eight year-old children must attend primary education until they have completed grade six or become 15 years of age. The educational statistics of 1985 (Division of Educational Information, Office of the National Education Commission, 1985) revealed that to 7,158,496 students were enrolled in primary school under the following organizations: Office of the National Primary Education Commission 6,044,609 (85.43%); Office of the Private Education Commission 640,695

(8.95%); Local Administration Department 213,598 (2.98%); General Education Department 13,130 (0.18%); Teacher Education Department 1,427 (0.02%); Police Department 13,845 (0.19%); Public Welfare Department 7,210 (0.10%); Ministry of University Affairs 4,804 (0.07%); and the Office of Education, Bangkok Metropolitan Administration 219,178 (3.06%). Of all the students in the first grade, only a small number had attended pre-school classes. For the 1985 academic year, the number of children attending pre-school classes was approximately 824,854.

5.1.4. Personnel. Characteristics of personnel found predictive of student achievement include sex, age, qualifications, experience, training, and student/teacher ratio.

Sex. Classrooms of female teachers have been consistently found to achieve more than classrooms of male teachers. This effect of teacher sex is related to educational equity since female teachers tend not to work in remote areas (Planning Division, Office of the National Education Commission, 1983). Similarly, the Research and Educational Planning Project (Office of the National Education Commission, 1980) found that primary teachers in the North were disproportionately male.

Teachers' Age. Manachote (1984) found a significant positive correlation between teacher age and mathematics achievement.

Teacher qualifications. The educational qualifications of both primary school teachers and principals have been found significantly positively related to the quality of primary education. Most primary classroom teachers in each region hold a higher certificate or its equivalent. The percentage of teachers with a bachelor degree or higher in the Central Region is higher than in other regions. The percentage of

teachers without a teaching certificate is highest in the Northeast. Teacher academic qualifications are correlated to student learning outcomes, promotion rates, and transition rates. Students in schools with a high proportion of teachers holding a higher teaching certificate tend to have higher achievement, promotion rates and transition rates than similar students in schools with lower qualifications (Educational Research Division, Office of the National Education Commission, 1987). Teachers with high qualifications tend to work in large schools or schools located in urban areas (Educational Planning Division, Office of the National Planning Division, Office of the National Education Commission, 1983).

Experience. Both administrative and teaching experience have an impact on educational quality. Teacher experience has been found to have a positive influence upon the student achievement. Almost half of the teachers in the Northern Region have less than five years experience (Office of the National Education Commission, 1980). Nocum (1984) found that academic school cluster teachers with more than six years of teaching experience and those with a bachelor's degree or higher performed more effectively than those with less experience and lower qualifications.

Training. Training includes both pre-service and in-service training. Pre-service training aims at equipping teachers with teaching ability, ethics, a positive attitude and devotion to their occupation, research skills and a knowledge-seeking approach. Every teacher-training institute plays an essential role in cultivating such characteristics. Policies must be coordinated in both the recruitment and the training of teachers. Curriculum policies encourage on-going studies by teachers and stress practical work alongside theoretical work as well as kindness toward

students. Moreover, policies regarding teacher training must take into account the future tendencies of Thai society and Thai education. In the near future, Thailand will become more and more urbanized and industrialized. These changes require an increase in scientific and technological knowledge. There will also be changes in social values, politics and education. Consequently, the curricula and structure of education at all levels will need to be adjusted accordingly. The implementation of the 1978 primary curriculum exemplifies this kind of adjustment.

The Department of Teacher Education analyzed the degree of correspondence between the teacher-training curriculum and the 1978 primary education curriculum (Teacher Education Department, 1981). Desirable teacher behaviours as expressed by the 1978 primary education curriculum were: (1) having adequate subject matter knowledge in the four content areas; (2) having necessary teaching skills to follow the curriculum; and (3) having a positive attitude towards teaching children and the teaching profession.

On the other hand, the teacher-training curriculum currently aims at recruiting primary teachers according to the structure specified by the Ministry of University Affairs and is based on the three learning areas: basic knowledge, vocational subjects, and specific subjects. The degree of correspondence between the two curricula was found to be greatest in the area of subject-matter, somewhat less clear in teaching skills, and least in the realm of attitudes.

Several researchers have investigated the objectives of teacher education as perceived by student teachers, teachers and administrators of

teachers colleges. Puticheewin (1977) found that colleges in the South placed greatest emphasis on academic ability. A study by Prajongsak (1977) indicated that student teachers believed they ought to cultivate the habit of acquiring knowledge. However, in reality, it was found that student teachers were most likely to follow the teaching techniques suggested in textbooks. Boonsong (1980) found that the teacher-training experience failed to meet either student expectations or the stated standards.

Netpalai (1977) revealed that the majority of student teachers were determined to do well in their undertakings. However, student teachers' teaching abilities were generally inadequate and limited, especially in class preparation, utilization of teaching aids and classroom control. Nikamanon (1980) sought to identify the necessary behaviors for good teaching in primary teachers, secondary teachers and teachers in teachers' colleges. Primary and secondary teachers agreed that teaching techniques and classroom management had an impact on the student achievement. In contrast, teachers from teachers colleges' believed that, at the primary level, the most important teaching behaviors were those related to evaluation, student evaluation, and learning reinforcement. The teachers tended to believe that primary school teachers should begin a lesson with activities to arouse student thinking (i.e., by asking questions, telling a story, group singing, or playing a games). They argued that, if possible, a teacher should try to relate each lesson to daily living. Pongparn (1983), who studied the opinions of students in Northeastern teachers' colleges about teaching behaviors, reported that the behaviors mentioned most often as crucial were class preparation, promotion of discipline, and presentation of content. The behaviors rarely mentioned were the

utilization of teaching materials, evaluation, and acquiring student feedback.

Teerasawat (1980) summarized problems in student teaching according to an ascending order: organization of activities and teaching materials, preparation of teaching and teaching records, assessment and evaluation, class control and human relations. Kosalawit, (1979) who studied the problem of using of teaching materials, found that student teachers of Phetburi Witayalongkorn Teachers College used teaching aids only at a minimum rate for the following reasons: difficulty in producing teaching aids, limitations on time and funding and lack necessary equipment. Student teachers wished that cooperating schools would help them provide teaching aids corresponding to subject matter.

A follow-up on teacher training program graduates from 17 teachers colleges conducted by Siripanich, et al. (1977) indicated that among the first and second batches, 90% were employed in the educational field as teachers or educational civil servants. About two thirds of them managed to find a job that corresponded to their major subjects.

Those who were employed in education found problems concerning their teaching, their administrators, their colleagues and their students. Eighty-five percent of these graduates felt they received adequate knowledge and teaching experience from teachers' colleges; while 75% said they received adequate academic knowledge and experience; and 55% felt they had acquired the knowledge and experience from courses in their major subjects. Most suggested that the curriculum should be adjusted to local conditions and everyday living.

The Department of Teacher Education conducted a follow-up study on graduates of teachers colleges who were primary school teachers for the academic years 1975-1978. It revealed that most teachers felt that the most useful subjects were: (1) basic subjects such as Thai, art of speaking, development of Thai culture, developmental psychology, mental health, and moral education; (2) educational subjects including educational psychology, child development of testing instruments; (3) specific subjects including Thai, Thai history, home economics, sociology, Thai grammar, geography, physical education, health education, performing arts and Thai literature. An evaluation of the performance of newly trained teachers in grades one and two revealed that abilities and skills in explaining, illustrating, and teaching methodology were no better than average, but skills in human relations and characteristics of teachers were above average.

From the research studies mentioned above, several recommendations can be drawn. First, teacher institutes should render closer cooperation in conducting research studies, examining the overall system of producing teachers in every aspect including philosophy, goals, teaching-learning process, evaluation, teaching behaviors, administrative system, and policies on budget allocation, etc. Second, there should be a study of the opinions of parents and community leaders about their expectations of graduates from teacher-training institutions. Third, in the academic aspect, there should be an emphasis on applications to present conditions and local needs. New methods of teaching should be introduced and students should have more time preparing themselves for their future profession and practicing their teaching skills.

Policy initiatives designed to improve the quality of in-service training of educators must not only provide better teaching equipment and facilities but must also improve teachers themselves so that they will be able to utilize educational innovations more effectively. The aims of in-service training are (1) to increase teacher capabilities and qualifications, (2) to provide training corresponding to the needs of local schools and communities, (3) to offer in-service training for teachers at their localities, and (4) to emphasize interagency coordination in organizing training courses.

The curriculum for in-service training should be practical, it should be responsive to local conditions, and it should be clear in its objectives with more emphasis on practical than theoretical aspects. The emphasis should be on a short training courses and special courses for upgrading teacher qualifications, for example, courses on the selection of appropriate teaching media for particular subject matter areas.

ONPEC studied problems concerning the quality of primary education since the implementation of the Primary Education Curriculum in 1978 until 1984. Because ONPEC found that most primary teachers lacked the skills and attitudes needed to organize instructional activities in accordance with the 1978 curriculum, it organized in-service teacher training nationwide during 1985-1986. Training methods included self-taught packages and supplementary media such as videotapes and slides. In addition, local resource persons who had attended training courses were utilized to expand the training by using school clusters as training centers.

ONPEC has also studied in-service training programs conducted at the central and provincial levels and found that in Bangkok there were 106

projects while there were 551 in the provinces. Workshops were the most popular mode selected for training, and character development was the favorite subject overall. Provincial teachers however, were more favorable to vocational subjects than were urban teachers. With regard to the topics, the priorities given by both the central and provincial areas were curriculum, instructional activities, production and use of instructional media and measurement and evaluation. The topics which were least attended were remedial teaching and post-tests.

5.1.5. Buildings and areas. This aspect includes school location and areas of the schools and other buildings. The school area should be sufficient for the number of students and schools should be situated in a suitable location for educational provision. Guidelines stated in official documents on health education (sub-committee in health education for educational purposes under the National Committee on Health Education, 1982: 4-5) cover the areas of personnel, school environment, health services in the schools, and sanitation. The basic minimum standard is that the location of each school should be far from disturbances such as noise, smell, smoke and dirt. There should not be immoral areas around the school compound. Schools should be fenced and located above flooded areas. The average space of school lawn per student should not be less than 4 square meters. Somprayoon (1981) expressed that a school should be located in an area where communication and transportation were available and convenient, and far away from factories, movie theatres, and slum areas. The school should be properly fenced and located in fresh air areas. The Ministry of Education guidelines specify that the average school area should not be smaller than 10 square meters per student (Sathorn, 1976).

The sub-committee on health education has stated that a classroom should not be smaller than 6 x 8 meters and the average classroom space per student should be 1.5 square meters. Additional buildings such as cafeterias should have a size appropriate to the number of students. Toilets must be sanitary, sufficient and separated for boys and girls.

Sathorn (1982) specified good characteristics of school buildings including: a) convenience for multi-purpose utilization, modification, and expansion; b) a "home atmosphere," c) a library, rest area, cafeteria, student playground, toilets, drinking water; and the possibility of serving as a community center. The minimum number of toilets specified in the standard set for primary schools (Department of General Education, 1977) is as follows: three restrooms for 100 male students and one additional restroom for every 50 additional male students, five restrooms for 100 female students and one additional restroom for every 35 additional female students.

The Office of the Private Education Commission (PEC, 1982) has conducted research to set educational standards for private schools. As a result, OPEC standards for school buildings were set to assure that each school be located away from disturbances, have a sufficient number of classrooms with adequate space per student, and adequate lighting, ventilation, cleanliness, and classroom accessories. Other rooms and spaces such as the teachers' lounge, nursing rooms, science rooms, libraries, instructional areas, playgrounds, clerical rooms, cafeterias, and restrooms must be adequate in number and well-equipped.

5.1.6. Instructional media. Instructional media materials are used to enhance effectiveness in the teaching-learning process. The most common

types of instructional media are chalk, blackboard, textbooks, teaching packages, programmed instruction, cartoon books and locally-produced materials such as samples, game cards, and models. Materials used to develop instructional media are paper, wood, plastic, cloth, etc. The Department of General Education-Ministry of Education, has classified three types of equipment that should be provided: equipment for classrooms, equipment for schools, and equipment for teaching as specified in the teacher's manual. Equipment for a classroom includes a timetable, a calendar, symbols representing national institutions, a map, supervising posters, etc. Equipment for instructional purposes include those for scientific experiments and agricultural activities.

Pornsermluz (1983) has analyzed the properties of instructional media for primary schools and concluded that physical properties should be as follows:

- (1) the materials should be easily obtained in a community and only basic skills should be required to produce the media so that every locality should be able to produce the media. The media should be neat and pretty, the subject matter should be clearly illustrated and should be suitable for the developmental stages of students, and media should cost less than 100 Baht.
- (2) The materials should be durable, flexible, easy to modify and safe to use.
- (3) The media should be easily maintained and stored.

Aspects of the materials which reflect their instructional qualities are as follows:

- (1) The media should arouse student interest in learning;

- (2) They should actively involve students in the teaching-learning process.
- (3) The media should be used for evaluation; and
- (4) Students should receive correct concepts without increasing the needed instructional time.

Im-arom (1982) found that the existing media in the primary schools under the Bangkok Metropolitan Administration included: general media, (i.e., newspaper, glue, a weighting scale, and a stapler); media for skills (i.e., T-square ruler, setsquare, and instructional pictures); media for life experience subjects (i.e., a world map, a map of Thailand showing details on transportation and natural resources, and some scientific equipment like testtubes); media for character development subjects, (i.e., volleyball, ping-pong bats and net, musical cassettes for teaching dancing); and media for work-oriented subjects, (i.e., brooms and hammers). In addition, Inwakul (1984) found that common equipment and instructional media were radio, portable radios and cassette-tape recorders, while the less common ones were television, film projector (8 mm), loop-film projectors, overhead and opaque projectors. However, each form of media had its own potential to support the teaching-learning process. Thus careful selection must be based on objectives of an instruction and cost.

5.1.7. Budget. Since primary education is compulsory, it is the state's responsibility to provide education for all children. For this reason, about 57 percent of the budget for education has been allocated for the provision of primary education and pre-primary education in both central and provincial areas. In the 1987 fiscal year, 41,214.2 million Baht were allocated for the educational sector, of which 23,789.9 million Baht went to primary education.

In the 1988 fiscal year, the overall educational budget is 43,840.3 million Baht with 25,173.0 million Baht provided for primary education.

Most of the educational budget is spent on salary, materials, equipment, and facilities. Meanwhile, the capital cost which comprises land and buildings amounts to only about 5 percent of the overall educational budget.

Apart from the national budget, primary education is also supported by donations from individuals, associations, and foundations. However, these sources of educational funds are quite limited and the amount acquired has been too small when compared to the governments's budget. In most cases the amount of non-governmental funds obtained by a school depends largely on each administrator, the image of a school, and the attitudes of the local people towards the school and its administrator. In that sense, private contributions in part reflect the perceived quality of the school, although they also reflect the ability of the community to provide support.

5.1.8. Summary. In summary, the input component includes a wide range of variables including goals and objectives of the curriculum and educational resource allocation. The educational philosophy as reflected in the 1978 primary education curriculum emphasizes basic knowledge for daily living along with an attitude of morality and good citizenship. Therefore, for basic knowledge, Thai language and mathematics are the fundamental subjects and considered the basic tools for learning. In addition, other subject areas are also provided, such as science, social studies, ethics, physical education, music, drama, and basic vocational skills. The overall primary education enrollment in 1985 was 7,158,496 students. About 91 percent of the enrollment was in the public schools while the rest was absorbed by the private schools.

Research studies indicated that teacher's background, such as academic qualifications and teaching experience is related to the student achievement. Responsible organizations have tried to provide in-service teacher training programs to improve teacher efficiency. The school environment, including school location and the learning atmosphere within a school strongly influence the teaching-learning process. Teaching media may also enhance effectiveness of teaching. Therefore, the adequacy of teaching facilities and the appropriate use of teaching aids tend to contribute to the quality of teaching.

Even though the amount of the educational budget allocated for primary education usually represents the highest portion (about 57 percent), most expenditures are recurrent costs mainly for teacher salaries, which leaves less than 5 percent for the developmental budget. At this point, it is quite clear that educational goals and desired student outcomes as specified in the curriculum help establish the goals for primary education, while educational resources such as personnel, budget, and facilities are means leading to the goals.

## 5.2 Process Component

The educational process is the most essential component for improving the quality of education because it is here that plans and policies are translated into practice. Therefore, the 'process' component largely determines the efficiency in utilizing various educational resources to the utmost. It is not simply the amount of inputs that affects educational quality, but rather it is how the educational process can equitably distribute and appropriately utilize inputs that may be decisive for upgrading quality.

The educational process of a school comprises three main components: school administration, the teaching-learning process, and evaluation. These three components are related and each one plays an important role in the process of school management. The school administration creates the overall structure and atmosphere for work which supports or hinders the teaching process, the main task of a school. Periodically, evaluation activities provide feedback about how a school is performing. The administrator may utilize such evaluative information to improve the school management and to supervise the pedagogical aspect more effectively. Literature regarding each component is reviewed below.

5.2.1. School administration. Sathorn (1983) stated that the administrator should perform not only an academic role but a non-academic role as well (such as public relations). The academic role should begin by translating the curriculum into teaching plans, school activities, and supervision. Meanwhile, the public relations aspect should focus on the interaction between a school and its community, including parents and government officials. In addition, Pruksawan (1982) classified the work of a school administrator into three parts: (1) academic management e.g., teaching-learning and evaluation; (2) clerical management e.g., financial, material, personnel records, and student records; and (3) school disciplinary management e.g., student discipline. However, these three major parts of school administration involve various activities with which a school principal has to deal. These include:

(a) Academic affairs. The school principal plays a supporting role for a good teaching-learning process. He/she can set criteria for subordinates to fulfill, such as school operating plans, a work calendar for all teachers,

information for school planning, and student evaluation activities. In addition, the school principal can search for good resource persons to participate in teaching, organize orientation activities for new teachers, provide teaching materials, and enforce the discipline of teachers.

According to Sikhpanya (1983), many teachers lack motivation to improve their careers due to inadequate support from administrators in academic affairs. This phenomenon results in part from the excess workload of school principals and a part from misconceptions about the principal's role in academic affairs. Mangkang (1984) found that school principals did not give genuine support to improve the teaching-learning in physical education, but rather sought to improve their reputation through victories in sporting events. This kind of motive reflects a misconception about the real objective of physical education.

(b) Clerical management. An administrator is responsible for record keeping for students, school materials and equipment, as well as other important documents.

(c) Personnel administration. This important function is not entirely under the control of a school principal. In practice the provision of teachers and school personnel is determined higher-up. However, the principal does make many important personnel decisions at the school level. The principal may introduce initiatives to support personnel or staff development and to strengthen the academic capability of a school. Personnel development is critical in many rural areas which lack specialist teachers in drama, music, and physical education. Principals may also improve the welfare of teachers or seek special incentives for teachers in rural areas.

(d) School building and school area. The role of a principal is to utilize school buildings and school areas the best possible way to provide a good learning environment. Students should be able to practice basic skills for work and should have a source to acquire additional knowledge for further study. A school should implant the habits of reading by providing useful books in a library. According to Chalerm Sri (1982), teachers and students benefit most from the library in the area of 'life experiences'. Both teachers and students agree that exhibitions in the library are useful for the teaching-learning process. Although the importance of the library is required, both teachers and students actually spend little time there.

(e) Student services. A school should provide some services to students in both academic and non-academic areas. Academic service includes school guidance, counseling and the library. The focal part here, however, is counseling. Suwan-aksorn (1981) explained that counseling may help people to understand themselves and the environment around them and to realize their own potential. Effective counseling requires information such as a survey of job opportunities in each community to provide relevant skill training. Moreover, a school should accumulate details of student records as basic information for counseling. Thongnui (1983) found that primary school students need advice in six areas in descending order: (1) social relations, (2) acceptance from others, (3) health, (4) cognitive ability, (5) personality, and (6) family.

Non-academic service includes a variety of activities. It depends on local needs of an individual school. Generally, a school should look after student's physical and mental health to guarantee the necessary conditions for learning. Some of the basic services are provision of clean drinking water,

first-aid, medicine, and a medical room. In some poor rural areas, students cannot afford to have lunch and these children usually have poor physical health which detracts from an effective teaching-learning process. In this case, the school should provide a lunch program, especially for poor children.

(f) School and community relationship. The ONPEC (1983) recommended that each primary school should become "a school in the community." In other words, a school should blend its activities in accord with the way of life of the community. When a school is tied to the community, it cooperates in every aspect of community development.

A school should take part in activities to improve the economic base, education and health of a community. In order to build a good relationship with a community, a school should develop a good relationship with parents, provide services or cooperate in community development programs, utilize public relations techniques, provide information and recommendations for a community, jointly promote national institutions within the community, improve the school's reputation, and jointly promote local tradition and culture with a community. (Office of the Private Education Commission, 1982; Office of the Local Education, 1987). To date, schools have not yet played a major role in community development.

(g) Monitoring and supervision. Monitoring and supervision are administrative tools to improve the teaching process. Therefore, those who supervise must understand the philosophy behind the curriculum, teaching methods, supervision techniques, and how to use related evaluative research results. Moreover, monitoring and supervision should be conducted at several levels: departmental, provincial, district, school cluster, and the school.

Supervision in primary education has encountered difficulties resulting from the organizational structure of primary education. This problem stems from part from the educational reform which changed the primary education curriculum and in part from the change of administrative structure which switched primary schools from of the Ministry of Interior to the Ministry of Education. Therefore, it is quite important to improve the supervisory network to meet present demands. The ONPEC has put a considerable effort into improving the the efficiency of supervision under the 5th Educational Development Plan (1982-1986).

According to Klaimée (1984), internal school supervision consists of three main tasks: (1) the pure academic task which deals directly with teaching-learning within a school, (2) staff development, and (3) supporting activities. In addition, the supervisory process involves five steps:

- \* Planning. A school principal holds a meeting to let all teachers participate in developing a school plan. Following that meeting, each teacher is responsible for elaborating his or her own operational plan.

- \* Orientation. A school principal informs staff about guidelines to perform various activities according to the plan.

- \* Implementation. A school principal monitors teacher performance and provides suggestions individual / and in group meetings.

- \* Reinforcing. When teachers perform well, a principal should provide appropriate reinforcement to acknowledge the desired behaviors.

- \* Evaluation. This is the final step in the process of effective supervision.

Most primary schools facing supervisory difficulties can trace the

problem to the lack of a resource person who can provide advice on school management.

Deewises (1982) found that school principals who have tried to monitor and supervise the use of curriculum by class observation have received good cooperation from teachers. When problems were detected, group meetings was convened to solve the problems together. According to Suwanraks (1982), primary school teachers need most assistance from a high ranking supervisory official in the academic area and sometimes in other areas. Furthermore, teachers with lower academic qualifications need more assistance than those with higher qualifications.

At the school cluster level, Sukasem (1983) concluded that the overall supervision on the use of curriculum, teaching-learning activities, evaluation techniques, and academic promotion activities has been minimal. This shortcoming resulted from lack of budget, weak skills by supervisory staff, inefficient group management, and a lack of any systematic evaluation process.

The National Institute for Development Administration and the Office of the National Education Commission (NEC, 1983) conducted research on "Factors Influencing the Quality of Public Education" which also touched on the efficiency of supervision. The study concluded that supervision has not been performed according to the objectives and lacked consistency. In practice, supervisory staff typically dropped by each school to record attendance, and provided insufficient academic advice on improving teaching techniques.

5.2.2. Teaching-learning process. Our discussion of this component will cover teaching-learning activities, utilization of teaching aids, and application of innovation and educational technology.

Teaching-learning activities. In spite of the fact that teaching-learning activities have been recognized by educators as an important part of educational quality, in practice the teaching methods have not yet met the guidelines of the national curriculum. According to Jampong (1985), about 90 percent of primary school teachers in Pachee District of Ayudhaya Province still utilize the conventional 'teacher-centered' teaching method. This result coincides with research findings of the Department of Curriculum and Instruction Development (1980) which showed that some teachers did not understand the real intention of the curriculum and were unable to translate objectives into behavioral items. Emphasis was placed on subject matter in various areas but teaching materials were rarely used. Thus, the 'chalk and talk method' was still prevalent, because teachers were well adjusted to this method and found it convenient to use.

In teaching basic skills in Thai language, Rerk-aram (1980) compared and observed teaching behaviors to the curriculum objectives which focus on skills to perform, ability to think, and enjoyment of learning. He found that teaching behaviors did not completely correspond to these objectives. For example, most teachers aroused student interest by playing games, but succeeded only in making lessons more fun while other objectives were not fulfilled. Regarding the teaching of Mathematics, Wannamakok (1986) found that teachers for grades 5-6 had difficulty in planning lessons because of a lack of time. Moreover, teachers did not study available teaching manuals to understand the approach to be used.

For the area of 'Life Experiences', Inthariganon (1983) found primary school teachers in Roi-et Province utilized group participation in singing and playing games most frequently, but rarely invited outside resource persons to

teach or rarely took students on field trips. Mahalawalert (1984) found that teachers utilized experiments most frequently for science class, while in social studies and health, teachers preferred role playing and group dynamics. Lertsinthai (1986) found that utilization of scientific methods helped students acquire scientific skills and achieve higher scores than the conventional testing methods. Prathomphat (1982) stated that the teaching of astronomy was too abstract, and that teachers could not find enough reading materials or effective teaching aids to fulfill curriculum requirements. This problem was further explained by Inthariganon (1983) who found that curriculum content was not suitable for local needs, and that lack of a teaching manual and teaching materials led to the ineffective teaching-learning activities.

For 'Moral Education,' Yodsarane (1985) found that primary school teachers lacked teaching skills in specific subjects such as drama, music, physical education, and vocational subjects. The supervision Division of the Department of General Education (1980) studied the ethical characteristics that teachers tried to implant and found that the highest priority was placed on student responsibility and discipline. The next priority was on rationale thinking, diligence, unity, and honesty. The lowest priority was on conservation, devotion, clemency, gratitude, and justice. The teaching method most frequently used for moral education involved providing advice and positive and negative reinforcement. Regarding student behavioral corrections, Thongprapal (1983) studied primary schools in the Bangkok metropolitan area and found that female teachers tended to correct student manners by emphasizing responsibility and discipline more often than did male teachers. Moreover, younger teachers focused more on responsibility and devotion than did older counterparts. Teachers with qualifications below a

bachelor's degree paid more attention to responsibility, honesty, and devotion than did those with a bachelor's degree or higher. Prathomphat (1982) reported that the problem of teaching ethics stemmed from teacher plans that only contained outlines with no specific details on teaching techniques. Moreover, students tended to demonstrate the ethical characteristics more at school than at home. In fine arts, students lacked materials for practice, and materials were expensive and not suitable for localities. Mangkang (1985) reported that most physical education teachers had not obtained any degree in this area, and often failed to teach sports rules or to instill sportsmanship among students.

Regarding the vocational area, Ketsakul (1982), found that in home economics and agriculture content was relevant to localities, but the contents in carpentry and crafts were not suitable because this type of occupation was not popular. In addition, students wanted to learn more about electrical skills.

Utilization of teaching materials. This is quite an important aspect of the teaching process because primary school children are usually at a developmental stage in which their attention span is short. Thus, teachers need to find strategies to capture student attention and help them understand and remember via the use of teaching materials. Inwakul (1984) and Chimplee (1985) reported that primary school teachers utilized blackboard, textbooks, and pictures most frequently, and that charts were scarcely used. Kong-uthaikul (1986) found that teaching materials were utilized most in Thai language class. Sari (1981) reported that primary school teachers needed teaching materials most for 'life experiences' subjects, followed by Thai

language, mathematics, fine arts, crafts, music, drama, and moral education activities.

Wannachai (1976) investigated the use of reading materials and listed the five easy-to-understand media: cartoons, newspapers, stories, pictorials, and novels. Masupree (1980) and Chuemthong (1985) reported that students achieved higher test scores through the use of cartoons for 'life experiences' class than through conventional teaching methods. Srithip (1981) found similar results in teaching demography. Regarding to the use of RIT (Reduced Instructional Time) materials, which are designed to enable students to spend time learning by themselves, Ratana (1982) reported that students in RIT classes achieved more than those in the control group in three subject areas: basic skills in Thai language and mathematics, moral education, and vocational subjects. However, no significant benefit of RIT was evident in 'life experiences' subjects.

Even though many types of teaching materials have proven their potential for increasing quality, the implementation stage is still weak. Overall the problem of utilizing teaching materials is caused by limited financial support and by a lack of technical know how. The amount of budget provided each school for teaching materials is very small. It is not possible for a school to provide enough teaching materials to cover all teaching areas. Moreover, a large number of teachers are inexperienced in developing suitable materials and rarely get assistance from experts.

Apart from the regular curriculum, teachers are also expected to organize some extra-curricular activities. The Ministry of Education (1961) defined extra-curricular activities as those not specified in the curriculum but voluntarily added by schools to improve the regular teaching-learning

process. Devarajasomboon (1980) classified extra-curricular activities into five categories: academic, recreation, religious, social volunteer, and community development. Satayayud (1984) investigated activities to promote good citizenship among private schools and found that most extra curricular activities related to government, orienteering, religion, social welfare, music and drama, recreation, and boy scouts.

Another important factor relating to the teaching-learning activities is the learning atmosphere, which describes the quality interactions between teachers and students. In teacher-centered instruction, a teacher usually controls student behavior closely and strictly enforces discipline. Students are not permitted to choose learning activities as they wish. At the other extreme, classroom structure is too loose to allow maintenance of a good learning atmosphere. Sometimes school management problems such as a lack of teachers can affect the learning atmosphere, for example, when one teacher has to look after more than one classroom at the same time, leading to problems in keeping order. According to the curriculum guidelines for the learning environment, the learning process is as important as subject matter content; students should be performers and teachers directors who provide enough freedom for students to search for knowledge and to make judgments; practice should go along with theory; a variety of teaching techniques should be used; and group-oriented activities are important.

The application of innovations and educational technology. The advancement in science and technology has progressed rapidly and many products have been applied to the field of education to improve quality and efficiency. The long range plan for child development (NEC, 1982), encouraged innovations such as non-graded classrooms, individualization of instruction, remedial

teaching, team-teaching, teaching modules, and the evaluation by behavioral performance as opposed to purely quantitative evaluation using percentage and rank order. Furthermore, various types of instructional media have recently been introduced for wider use such as tape-recorders, slides, film strips, documentary films, and radio and television educational programs. However, since the cost of investment and maintenance for these innovations is quite high, the expansion of their use cannot soon reach rural areas.

5.2.3. Evaluation. The evaluation process is vital for improving quality. Since the 1978 curriculum reform, when the old 1960 curriculum was replaced, the student evaluation process was also changed. Previously, the purpose of evaluation was simply to determine a passing or failing grade. Since the curriculum reform, evaluations have been used to improve the teaching-learning process. Evaluations are no longer been made only at the end of a school term or a school year, but are now conducted before, during and after various teaching activities. Teachers are supposed to integrate evaluation into the teaching-learning process, based on the specific criteria of each lesson. Summative evaluation at the end of the school year is expected to be conducted for grades II, IV, and VI. Each school is responsible for evaluating grades II, and IV, while for grade VI evaluation is handled by the district officials. Substantial knowledge is required if a teacher is to fulfill these evaluative regulations.

According to Jitjana (1983), in most cases teachers evaluate students by checking students' classwork and by observing students in group activities. Sometimes teachers at the same level collaborate to develop test instruments, while a school plays a supportive role by providing needed materials and reference documents. Nevertheless, Puwarangkul (1982) found teachers faced

many problems in developing testing instruments, especially for remedial instruction. Satayayud (1984) reported that teachers were unable to develop adequate test instruments to measure all learning objectives as stated in the teacher's manual, and that some teachers had difficulty accurately filling in the evaluative forms and deriving correct scores. Jitjana (1983) elaborated that teachers were not able to evaluate students behaviors at home because of the difficulty in developing questionnaires and self-evaluation forms for students, because of the lethargic cooperation from parents in monitoring student behaviors at home, and because of the extra time and effort teachers had to spend on this task. Yodsaeranee (1985) indicated that some teachers felt uneasy complying with the evaluation regulations, and Prathomphat (1982) reported that some teachers thought the requirements on evaluation in the new curriculum were too detailed and placed too much burden on the teachers.

The 1978 curriculum was intended to reduce the importance of testing as the only tool to determine whether students passed or failed. Specifically, the new curriculum cut down the number of final examinations to grade levels II, IV and VI and encouraged other techniques like observations and ability performance to partially replace testing. Nevertheless, since the inception of 1978 curriculum the role of testing has again become as dominant as in the past.

Based on the above-mentioned problems in evaluation, Jitjana (1983) recommended some alternatives: providing opportunities for teachers to gain more skills in evaluation; improving the teacher-training program to produce more effective teachers; and strengthening supervising strategies to monitor teacher performance, especially for evaluation.

5.2.4. Summary. In summary, the educational process of a school is expected to focus on three main interrelated activities: school administration, the teaching-learning process, and evaluation of student outcomes. School administration includes a number of tasks in academic areas, clerical work, and student discipline. The performance of these tasks can affect the efficiency of the teacher-learning process. However, research studies have found that school administrators have had difficulty in performing academic roles and, especially, in fulfilling curriculum objectives. Primary schools have continued to lack teachers with special abilities in teaching music, drama, and other specialized subjects. In addition, the evaluation process has served limited purposes, mainly to determine passing or failing grades. There have been insufficient standard evaluative tools to inform teachers about student progress in learning, and this has impeded the improvement of teacher-learning activities.

The educational process is an essential part of educational quality because it is the stage where educational policies are transformed into practice. The health of the educational process, therefore, indicates the efficiency in utilizing educational resources. The abundance or adequacy of educational resources alone cannot guarantee the quality of education. In other words, the lack of educational resources does not always predict a poor level of school quality; rather, school quality is determined by the quality both of the inputs and of the efficiency of the educational process.

### 5.3 Output Component.

The output component may be considered in both quantitative and qualitative terms. Quantitative output is reflected in the achievement level of students and in the promotion rate. Sometimes the quality of primary

education can be predicted by variables such as the percentage of students who received pre-primary school training, or the percentage of students who can afford or participate in the lunch program. On the other hand, researchers need to measure output in terms of student development according to all the desired characteristics of the curriculum, not just academic achievement. For example, the basic knowledge needed to lead a normal life with the requisite moral values and ethical characteristics needed for a democratic society, and the basic skills to earn a living are all fundamentally important in the 1978 curriculum.

Despite the fact that quality is of main concern, educators cannot disregard the importance of efficiency because educational resources are limited. The efficiency of an educational system includes both internal and external efficiency. Internal efficiency focuses on the consequences of the management process such as the promotion rate, student attendance rate, the rate of completion, and the average number of years needed to complete primary education. External efficiency, meanwhile, involves on the degree to which primary education can fulfill social and community demands, such as labor market demand, the readiness of primary school graduates in performing vocational skills, and students' ability to participate effectively in community development.

During the past decade there have been many evaluative programs to improve quality. Most of these programs utilized achievement tests to identify the attainment of quality. Some of the major evaluative programs are considered below.

The Department of Curriculum and Instruction Development launched an evaluative project at the end of 1978 academic year. This project compared

student achievement before and after the 1978 curriculum. The sample of the study consisted of 2,491 grade II students, and 2,462 grade III students. The number of students in the old and new curriculum was about the same for each grade level. The results of the study indicated that for grade II, students in the new curriculum achieved higher in Thai and mathematics, but that in 'life experiences' subject the two groups averaged about the same. For grade III, students in the new curriculum achieved more in almost all subjects including Thai, mathematics, vocational subjects, and moral education. However, the average scores in the 'life experiences' subject of students in the new curriculum was lower.

In 1980, the Office of the National Education Commission evaluated the efficiency of primary education. The study measured basic skills of Grade III students in Thai and Mathematics as compared to the achievement scores in 1973 by using the same test. The comparison was based on average adjusted total scores of Thai and Mathematics. The average score in 1980 was better than the performance in 1973 by 16 percent of the total score.

During 1981-1982, the Office of the National Education Commission conducted the School-Mapping Project which tested the basic skills of grade IV students in the ONPEC's schools throughout the country. The tests covered calculating ability and Thai language competency. It found that the average student's basic skills were slightly lower than the accepted standards. Slightly less than half of the students achieved below the satisfactory level.

The three major evaluative programs confirmed that achievement levels in the basic skills of Thai and Mathematics were not satisfactory because the average score was lower than 50 percent. The only subject for which the average score was above the criterion was the vocational subject.

The Office of the National Primary Education Commission conducted an evaluation project in 1985 to study the output or the quality of grade VI students. The evaluation was made at the national and provincial levels. Achievement in all subject areas was measured to reflect curriculum objectives covering the cognitive, affective, and psychomotor domains. Behavioral terms relevant to the needs of the provincial level were identified for measurement.

The evaluation of grade VI students at the provincial level resulted from cooperation between the Offices of the Provincial Primary Education (OPPE), Teachers Colleges and the Regional Education Offices. There were 32 evaluative committees across the country. A committee consisted of a chief educational supervisor, a team of educational supervisors who were responsible for evaluation programs, and instructors from a Teachers College. Each group was led by the Director of the OPPE with advisory assistance from the Rector of a Teachers College and a Regional Education Officer. The main tasks of these committees were to set the evaluative plan, to develop instruments, to oversee the administration of the tests, to analyze data, and to prepare the report. The actual implementation of the testing procedures was organized by the Office of the District Primary Education. After completing the evaluation process at each school in a district, the results were collected by district officials and forwarded to the provincial office for analysis.

The results of evaluation at the provincial level may be summarized on the basis of the average scores on each subject for 1984 academic year and the percentage of students who passed the satisfactory level as follows (Office of the National Primary Education Commission, 1986).

\*For basic skills in Thai language, the average scores of all provinces were satisfactory (above 50 percent), and the percentage of students who passed the 50 percent mark was 98.5 percent.

\*For 'life experiences' subjects, 95.7 percent of all provinces had average scores at satisfactory level, and 92.6 percent of all students passed the criteria.

\*For basic skills in mathematics, 81.4 percent of all provinces had average scores at satisfactory level, and 75.0 percent of all students passed the criteria.

\*It was observed that the majority or about 65 percent of all provinces had average scores in Thai and 'life experiences' within the range of 60-69 percent, while their average scores in mathematics were between 50-59 range. For the vocational subject, about 92 percent of all provinces had average scores between 60-79 percent.

Evaluation results at the national level for the 1984 academic year (Office of the National Primary Education Commission, 1985) indicated that only in vocational subjects did students surpass the 50 percent mark with an average score of 55 percent. Meanwhile average scores in Thai and 'life experiences' subjects were slightly lower than the satisfactory level, at 49 and 44 percent respectively. The lowest average score was on mathematics which amounted to 33 percent. For students' hygiene, the average score was 2.141 points on the scale of 3 meaning moderate cleanliness. The last section of the evaluation was on physical strength, weight and height where average scores were 1.647, 1.637 and 1.356 respectively, meaning these three physical conditions reached the normal standard.

The ONPEC conducted another evaluation program in 1985 academic year which replicated the 1984 evaluation but expanded the sample size and added more outcomes in the areas of basic skills and 'life experiences'. The results were compared with those of the previous year to measure the progress made and are summarized below (Office of the National Primary Education Commission, 1986).

The results of evaluation at the provincial level indicated that for Thai language 35 provinces gained in their average scores and the percentage of students who were above criteria had also increased. The progress in 'life experiences' and vocational subjects was less promising. Moreover, there was no improvement in mathematics from 1984 to 1985. For moral education, the average scores were satisfactory in both years, and physical strength improved slightly.

The results of evaluation at the national level indicated that achievement in vocational subjects was highest among the various subjects, averaging 57.60 percent, followed by Thai, 'life experiences,' and mathematics with average scores of 56.84, 45.69 and 36.52 percent respectively. In 1985 Thai language was an additional subject to pass in which the average exceeded the minimum standard. For moral education, both years had average scores at the same level.

The Bangkok Metropolitan Administration (BMA) evaluated student achievement for all schools under BMA administration every year. Prior to 1983, the test results for each school were compared to the average norms of all BMA schools. However, there were drawbacks in using this procedure. Unfortunately it created competition among schools instead of focusing attention on school improvement. Therefore, from 1983 onward, a criterion

referenced evaluation has been used, and the comparison between schools has subsided. The criterion used for evaluation requires that more than half of the students in each school pass the test with scores higher than 50 percent in each behavior, with an overall average higher than 50 percent. In 1984 students in 422 schools were tested, and 1985 students in 425 schools were tested.

The results of 1984 evaluation (Education Office, BMA, 1985) indicated that 303 schools or 71.80 percent were at the satisfactory level, but that 119 schools or 28.20 percent failed to meet the criteria. Most Bangkok Metropolitan Authority (BMA) schools passed the criteria for all subject areas except moral education. In addition, four behaviors were identified as targets for improvement: problem-solving in mathematics, listening comprehension in Thai, behavior needed to live in harmony, and basic knowledge of the arts.

The results of 1985 evaluation (Education Office, BMA, 1986) indicated a downward trend, because out of 425 schools there were 251 schools or 59.06 percent at satisfactory level, while 174 schools or 40.94 percent did not pass the criteria. When comparing average scores among subject areas, Thai language score was highest followed by scores in vocational subjects. The lowest average score was on mathematics.

From the review of research and evaluation projects on the quality of primary schools, it is observed that the emphasis was placed on the achievement level of students on academic areas. Consequently, teachers tended to overemphasize academic subjects and devoted inadequate time for developing other characteristics related to values and behaviors in the affective domain. Therefore, many teachers still encouraged the rote learning

needed for good performance on a test. According to a survey conducted by the Department of Curriculum and Instruction Development (1979) on the teaching-learning activities of grades I and II, the most common teaching method was the lecture, followed by asking questions. The emphasis was not on group activities but rather on individual problem-solving. However, this type of teaching approach did not fulfill the objectives of the National Education Plan, especially with its emphasis on the ability to work harmoniously and democratically as a group. It actually implants too much of a competitive attitude for individual progress and prosperity. In effect, this type of teaching-learning process could be considered as failing to develop appropriate values among children. The negative impact of this phenomenon is reflected in the work habits of people as reported by Kraissit (1980) and Buripakdi (1984) who found that, for some people, working and entertaining could take place simultaneously. Most Thais prefer working with plenty of freedom, less responsibility, and hence, are less effective in working in a group because of a lack of discipline.

The repercussions of an ineffective teaching process may be seen in work habits and inappropriate values in life. They might be taken as a precaution among educators to pay more attention to the details of subject matter content, the teaching process, and evaluation procedures. It should be realized that academic achievement alone does not reflect the true quality of a school, even though this type of evaluation covers both knowledge and skill performance. Academic achievement actually represents the ability of a school to transmit knowledge, but it is not just this end product that can be considered the sole measure of quality. Quality must reflect all aspects of student's education. Thus, the characteristics and abilities of students in

responding to the needs of society are even more comprehensive than what achievement scores indicate. Another aspect of a school that indicates quality is its relationship to its immediate community, or its external efficiency. Unfortunately, this aspect of quality has rarely been evaluated. There are inadequate numbers of research studies pertaining to the satisfaction with whether the school functions to prepare children to be good and productive members of a local community or the larger society. Therefore, policy research should take into account both the internal and external efficiency of a school. The research findings will then be more relevant to the living conditions of the people, and recommendations generated from this type of research will be more responsive to the needs of society. The following topics represent areas of policy research that should be conducted as in-depth case studies to inform educational planners and administrators of effective strategies to improve the quality of primary schools.

\* School and community relationships. Research on this topic should seek ways to help a school gain support and cooperation from a community.

\* Evaluation of the impact of the in-service teacher training programs. Since the investment of this type of program is quite high, administrators should be informed the actual impact of these programs in the really classroom.

\* Research on effective strategies for allocating educational resources to improve quality.

\* Research on the development of teaching media to suit the local environment.

\* Research to improve monitoring, supervising, and evaluation.

## 6. Quality Indicators for Primary Education.

From the review of documents and research reports about the quality of primary education, it was found that there are many variables related to quality. However, most research findings focused on single variables. There are insufficient studies focusing on the combined effects of variables in explaining educational quality. Therefore, available information about influential variables for assessing quality cannot really be used to analyze the causes of the problem in a way which justifies decisions on effective strategies to improve the quality of primary education. Therefore, it is necessary to synthesize all of the necessary research information to develop a list of essential variables and indicators that should be more thoroughly studied to test the conceptual framework presented in this paper. The organization of variables and indicators will be presented according to the components of an educational system as follows:

### 6.1 Input Component.

6.1.1. Students. Some basic variables related to student input are the number of students within a school classified by grade level, sex, and age. In addition, student opportunity to receive pre-primary education indicates the quality of inputs into a school.

6.1.2. Personnel. School personnel should be classified as administrator, teacher, and supporting staff.

Variables describing administrators should cover his/her background about academic qualification, age, sex, experiences as an administrator

(number of years), in-service training in administration (name of organizer and year), and attitude towards profession.

Variables describing supporting staff should cover his/her background including academic qualification, age, sex, experiences in current position (number of years), in-service training related to assignment (name of organizer, year), attitude towards profession, number of supporting staff for school record, finance, and other clerical work.

6.1.3. School Buildings. The variables here include school location, school space (Rai), building space, classroom space (square meter), and the number of various types of buildings. School location variables should be classified as urban/rural, and flooded/nonflooded areas. School space consists of playground area and space for buildings. School buildings should be classified by purpose of use, and details about room utilization should be furnished such as regular classroom, laboratory, library, first aid, teacher's lounge, etc.

6.1.4. Teaching Materials. This category covers teaching media, equipment, and school facilities. Teaching media are the teaching aids that teachers use to make the teaching-learning process more effective. School equipment and facilities cover a wide range of items such as blackboards, desks, chairs, document cabinets, typewriters, drinking water facilities, etc. A check-list of teaching materials, equipment, and facilities will determine adequacy and quality of each item.

6.1.5. Budget. There are two main categories in regard to budget, namely, governmental budget and non-governmental budget. The governmental budget should be classified according to purpose, such as, materials, equipment, facilities, land investment and building construction, and others.

The non-governmental budget usually comes from tuition fees (for private schools), and contributions.

## 6.2 Process Component.

It should be noted that data on process variables are very difficult to collect in quantitative form via questionnaires. If a research study has to rely on a questionnaire, it cannot guarantee the completeness of information about process unless some forms of qualitative approach are introduced. Studies ought to be conducted to obtain more details about process through observations and interviews and to test some of the hypotheses generated from survey questionnaires. Furthermore, information about process should not be obtained strictly from the responsible persons; rather, some cross-validation should also be attempted. For instance, information about school management may be obtained from teachers and school personnel, not only from the school principal. Information about the teaching-learning process should be cross-validated by interviewing students. The variables and indicators of process component include:

6.2.1. Administration. Variables reflecting the work of school administrators should describe duties in academic and clerical areas, student services, and school and community relationships.

\* Academic administration is the work that promotes teaching-learning activities. It covers personnel administration, building and classroom utilization, and supervision. The quality of academic administration may be reflected by the school programs and projects, operational plans and teaching schedule, information on school planning, effectiveness in providing teaching materials, short-term and long-term personnel development plans, plans to

utilize and maintain school buildings, and the frequency of internal and external supervision.

\* Clerical administration includes the management of school records about students and teachers, about accounting and finance procedures, maintenance of school facilities, and preservation of important documents.

\* Student services administration covers a variety of variables in the academic and non-academic areas. Academic services include school orientation, counseling, and the library. Non-academic services include the provision of first-aid, vaccination, drinking water, and the lunch program.

\* School and community relationships are another aspect that reflects the school quality. This could be measured by the number and type of activities in which a school has actually been involved with a community. The activities could be classified as academic activities and non-academic activities.

6.1.2. Teaching-learning Process. The information about this aspect should be obtained through questionnaires and observation. The variables should include teaching methods, utilization of teaching materials and innovation, classroom atmosphere, supplementary activities, and remedial teaching.

6.1.3. Measurement and Evaluation. The information about this aspect should also be obtained through observation and interview. The variables should include frequencies and methods of measurement and evaluation in each subject area, homework assignment, homework checking and teacher's feedback, and school report book.

6.3 Output Component.

As stated earlier, output variables should be both quantitative and qualitative. They should cover student academic achievement and the affective domain. However, focusing purely on quality is not practical, because of education's limited resources. For this reason, research should consider the most efficient way to improve educational quality so as to help educational planners and policy-makers make decisions. Educational efficiency includes both internal efficiency or school management efficiency, and external efficiency which in part is reflected in public satisfaction with education.

6.3.1. Quantitative Output. The quantitative output should be considered including student achievement in each subject area (basic skills in Thai and Mathematics, life experiences subjects, moral education, vocational subjects, and special experience subjects). In addition, more of these variables should be considered, including percentage of students who achieved a satisfactory level in each subject area, promotion/repetition rate, school completion rate, average number of years needed for completion, and school retention/dropout rate.

6.3.2. Qualitative Output. The variables for this aspect are quite difficult to obtain because they cover many characteristics of a student, such as ethical characteristics, capability and skills for work. In addition, variables regarding the community's satisfaction with its school should also be included, including satisfaction with the student's ability to work, student ability to participate in community development, and student readiness to further his/her education. The qualitative output should be obtained through student observation within a school and interviewing teachers, parents, and community representatives.

Educational outcomes are criterion variables reflecting primary school quality. The outcomes are determined both by educational policy and the efficiency of management. However, data analysis is not straight forward, because there are other factors, including student and community social and economic background which play a significant role in determining educational outcomes. Even though these social and economic variables may not be directly changed by educational policies, these variables must be included in the data collection to present the general scenario of each locality before conclusions about school effectiveness may be drawn. Therefore, the database should contain social and economic variables such as number of households, population size of the sub-district area, parent's occupation, religion, language, and public facilities.

The variables and indicators discussed in this paper provide the basic information needed for the study of primary school quality. After all necessary information is gathered and analyzed, the important indicators that emerge should be tested and standardized according to the circumstances. These indicators will then contribute to the development of an educational management information system to monitor and improve primary school quality.

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