The need for research in education

Caleb Omolo Ndиеge

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CALIFORNIA STATE UNIVERSITY
SAN BERNARDINO

THE NEED FOR RESEARCH IN EDUCATION

A PROJECT SUBMITTED
TO
THE FACULTY OF THE SCHOOL OF EDUCATION
IN PARTIAL FULFILLMENT OF THE
REQUIREMENT FOR THE DEGREE OF
MASTER OF ARTS
IN
EDUCATION: SCHOOL ADMINISTRATION

BY
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INTRODUCTION

This study is made to view the problems facing the developing countries of Kenya, Thailand and the Philippines in education and to propose methods of minimizing these problems.

The gap between the theory and practice of teaching is as wide as it is deep; curriculum inanities contribute to this distance. Most educational research is conducted within the framework of an academic discipline using the perspective of psychology, sociology, or economics to view schools as objects. These can be then broken down into elements or variables, which in turn can be observed, measured, and analyzed in scientific terms, rather than looking at schools as teachers facing classes.

Many teachers have had little experience in drawing implications from research for their own teaching or do administrators in educational settings have knowledge of what research is or how it could best be conducted. Teachers are so used to working from the established curriculum that they do not consider the idea of developing new curricular approaches of their own. Teachers have rarely been encouraged to integrate research findings, simply because they lack expertise in how to do it.

The idea of incorporating fresh ideas and insights
into schooling is further complicated by changes imposed upon school administrators by the government. In the developing countries things seem to be dictated by the government or any other agencies commissioned to help out with the dissemination of ideas. All of these bodies frequently serve to alienate and confuse teachers and administrators who would probably have figured out by themselves how to best implement these new ideas if they were given the responsibility and experience for designing their own school curriculum. Teachers should know in depth what the problem is through research methodology followed by evaluation to get the feedback.

It is time for educational leaders to put their profession in order. They must begin to think of a workable plan and to act to carry it out. Otherwise it looks foolish to let people who are not actually teaching or administering to schools develop the curriculum for them.
Purpose

The purpose for which research is actively cultivated is to provide directions for the improvement of practice. A more accurate reading of the research practice relationship, however, is in the context of policy formulation and planning for implementation as represented diagrammatically in the Figure 1. In this figure research is viewed not in isolation but as an integral part of the process of development.

![Figure 1. Research Process](image.png)

Since the colonial rule which ended in the 1960's, there has not been substantial research conducted in Kenya to improve education. The one study which was attempted in 1971 cannot be termed research because it
lacked theoretical, experimental and developmental, and action components. It was research done through assumption without planning, implementation, or guiding policy.

**Theoretical or Basic Research**

The main goal of theoretical or basic research is to seek new knowledge or to advance the frontiers of existing knowledge. A substantial proportion of research in this category is concerned with psychopedagogical issues and problems such as child development and its implications for the processes of learning. Theoretical research has begun to take cognizance of political and socio-economic dimensions as well, viewing education in the context of its total environment.

**Experimental and Developmental Research**

In contrast with basic research, the purpose of applied research is to answer specific questions about practical problems. Educational research and development, otherwise called research-based development, seeks to develop and validate educational products, including systems, procedures, processes and materials. This model of educational research is concerned with education as
a major stimulant for social change in the wider arena of national development. Consequently innovation in education must be conceived in the context of a whole system. While research and development programs are ultimately aimed at the modification of teacher behavior, the teacher is himself viewed as a vital component in the education system.

A country will keep its education standards high if the research and development focus on the methods of primary education, with particular reference to science, mathematics, social studies and physical, and health education. In addition, all the work must be reviewed and improved to support the entire educational system, including professional support, textbook utilization and continuous progress. Every policy in education is subject to implementation. They can be restructured and reorganized, curriculum reviewed, student evaluation and the upgrading checked. There needs to be a constant readjustment of the contents and methods of teacher education in relation to the needs of the primary school curriculum.

Countries like Japan and the Phillipines have experimented with an Elementary Education Program which
points out the need to restructure that level of the learning process to make it responsive to present day needs, less subject-centered, more flexible in scheduling and more developmentally-oriented.

Reduced Instructional Time

In some countries through research they have found out from observation that:

1. teachers very often take time to teach what the pupils have already learned.
2. teaching sometimes does not allow pupils to progress at their own pace; and
3. learning in some situations can take place without teachers.

With these factors in view, the project (Experimental Elementary Education Program) will attempt to reduce:

1. time for teacher-pupil face-to-face interaction.
2. the learning time of pupils so that time thus saved could be used by the teachers for other necessary activities and by the pupils to learn other new concepts.
Micro-teaching Approach for Improving Teaching

This project can be helpful in developing teaching skills for student teachers in teacher training colleges. Through this method the teaching behavior of student-teachers can be improved to meet a particular group need or special program for the teaching and supervisory can be carried out. Based on the findings of the pilot and orientation stages, micro-teaching can be found to be useful.

The micro-teaching approach has been used in Thailand and the result of the project revealed that student teachers who had undergone micro-teaching were more competent in teaching than those who had not received such training.

Action Research

Action research is concerned with small scale intervention in the functioning of the real situation and a close examination of the effects of such intervention. Action research can be described as:

Situational - when concerned with diagnosing a problem in a specific context and attempting to solve it in that context.

Collaborative - when teams of researchers and
practitioners are working together on a project.

**Participatory** - when the team members themselves are taking part directly or indirectly in implementing the research.

**Self-evaluative** - when modifications are continuously evaluated within the on-going situation; the ultimate objective is to improve practice in some way or other.
SOME PROBLEMS AND ISSUES RELATED TO
THE APPLICATION OF RESEARCH FINDINGS

The simplistic view that the conduct of research and dissemination of its findings to the practitioner would lead to the clarification of teaching/learning problems and thus pave the way for their eventual solution, has not been borne out by what has really happened in the field. Some of the problems which could be observed in the application of research to improve practice are related to:

1. technical and methodological weaknesses.
2. communication gaps between researchers and practitioners.
3. problems in organization and management.
4. professional perspectives.

Technical and Methodological Weaknesses

Two fundamental problems encountered are the lack of precision in the way educators conceptualize the educational problems, and the lack of understanding among those concerned in regard to the methodology and theoretical framework of educational research. For example, it has not been generally understood that educational
research cannot be too narrowly conceived as pertaining to the school system alone because variables, extraneous to this system, are often not taken into consideration.

There would appear to be a pressing need for more regular and systematic training for both researchers and users of research so as to bring into proper perspective the nature of research, its methods and processes, and its relevance to the problems it is intended to solve.

One persistent weakness is that research studies, especially those conducted by universities and other tertiary institutions, tend to be too theoretical and insufficient emphasis is placed on program-oriented research methods and instruments which have been duly tested to ensure a greater incidence of validity and reliability to research findings.

*Communication Gaps between Researchers and Practitioners*

It has been mentioned that there is a general lack of understanding, especially on the part of users of research, about the nature and method of research. Unlike practitioners in other professional fields, teachers are often unable to apply the findings of research in their daily practice. This factor, and the limitation of
educational research as a practical science, has led to a general lack of credibility regarding the relevance of research and mutual distrust between researchers and practitioners.

Basic research cannot be immediately translated into practice. Its results have to be tested over time, and validated through a tedious process of try-outs and course-corrections in order to be adapted for practical application. This has often caused decision makers and practitioners in education either to ignore the results of research altogether, or to use the results before they have been adequately tested.

The bureaucratic system, which is heavily entrenched in many educational systems, has also contributed to the gap between research and practice. Policy makers and bureaucrats are free from any compulsion to utilize research findings. They are often concerned with other issues and concerns. The resulting aloofness and the lack of understanding problems on the part of researchers has contributed to the existing gap between these two groups of people.

**Problems in Organization and Management**

One of the problems in organization pertains to the
research effort itself. Research projects are often too fragmented, their implementation poorly conceived and the methods poorly organized. To ensure success in research implementation, a systems approach is essential.

The mechanics of dissemination of research findings is another important factor that could influence the extent of its impact on educational practices. There is often a lack of channels for the dissemination of research findings at the central provincial and local levels with the result that policy-makers, on the one hand, and practitioners on the other hand, remain unaware of the new trends in knowledge and their resultant applications.

The problem of dissemination and transmission is often compounded by the lack of professional support to sustain research-based educational development. Frequent changes of personnel at the various levels of administration, the inadequacy of training programs, and the lack of regular and consistent financial provision further contribute to the absence of a clearly enunciated policy for the application of research results.

Professional Perspective

Some of the research results reported by Thailand
record significant changes in teaching attitudes and behavior during the implementation of the projects. For research to improve practice there must be a sustained atmosphere of responsiveness to research and innovation in the schools. Research skills do not rate highly among teachers in their list of duties and responsibilities. Other constraints are the heavy teaching load currently endured by teachers and the lack of funds for promoting research-based teaching.

In addition, there is perhaps an unrealistic expectation about the relevance or the uses of research on the part of teachers as well as policy-makers and administrators. It may not be feasible to expect research to provide definitive answers to problems which reflect local, personal, or short-term factors.
Decentralization and Accountability

Decentralized education raises the overall quality and efficiency of elementary education and improves the management capabilities of the system, especially at the regional and sub-regional levels. Decentralized education is mainly intended to improve pupil achievement, decrease dropout rates, raise survival and participation rates, increase pupil-teacher ratios and raise the efficiency of the total education system.

Evaluation through the efforts of a research team would reveal whether introduced reforms in the curriculum, textbooks used and other supplementary instructional materials were of any value. The research would further show whether staff development programs, and school facilities need monitoring and evaluation.

Educational accountability is, therefore, a joint effort. It requires a willingness of individuals to establish standards for meeting their responsibilities. The product of evaluation is action. Action that facilitates improvement and change. Action that requires an openness on the part of all persons involved. If anyone desires a change in the present educational system, he/she first, must answer this question:

"What must I do to myself to allow it to happen?"
In education, an individual's responsibilities should be tied directly to the programs they are assigned to manage. The four basic areas of responsibilities are:

1. Program Purpose
2. Program Process
3. Program Products
4. Evaluation of Program Components

But to measure these basic areas of responsibility, research must be done to find out what is really needed.

**Program Purpose**

Programs must be designed to do something specific for clearly identified individuals or groups. Where the term "purpose" would justify an idea or ideal kept in mind as an end effort of action, plan design, and aims. The required action would be:

1. Identify the target population of the program.
2. Develop an information input system.
3. Develop a system to establish priority.
4. Define prioritized needs of the program.
5. Define a philosophy of the program.
6. Establish goals of the program.
7. Develop a program of objectives.
8. Validate the program purpose.

Looking at the first four steps in this plan, they answer the question: "Why have the program?" When you look at the last step it requires verification of the fact that the purpose of the program is to meet the needs of a specific target group. This kind of work needs research and evaluation.

**Program Process**

The process is a series of continuous action which bring about a particular result: end, outcome, or condition. This process can be successful only if you have enough feedback from the research. The necessary considerations are:

1. Identify the content of the program.
2. Identify the basic elements of the program.
3. Identify the major concepts and skills of the elements.
4. Identify the interrelationships of the concepts, skills, and attitudes.
5. Define the program expectancies.
6. Identify the alternative strategies.
7. Select the most feasible strategy.
8. Validate the program process design.
With those items in mind, the process can be divided into three parts: nature of learning; nature of content to be learned; and, nature of learner (Figure 2).

Figure 2. Program Process

If all three areas are carefully considered, the structure of the program can have validity. But to discover the strengths and weaknesses, a strong evaluation design is needed with a follow-up.

**Program Product**

The product is anything produced or obtained as a
result of some operation or work as by growth, labor or thought. The steps necessary to produce the expected outcomes are:

1. Identify the management skills required of individuals.
2. Obtain the program logistics requirement.
3. Develop the program management systems.
4. Select the program staff.
5. Provide for program management competencies.
6. Operate the program.
7. Monitor the program management.
8. Validate the program product.

The first step establishes the skills required for meeting the program manager's responsibility. The second step provides the necessary support, materials, equipment and facilities. The third and the fourth steps identify and assign responsibility. The fifth step is an often overlooked requirement of assuring that each individual has the competency required to meet the responsibility. This could mean providing inservice training, reassigning personnel to other positions, or locating someone out of the system with the required talent.
Evaluation of Program Components

Evaluation appraises, finds or determines the amount, extent, value of effort, action, plan, design, and outcome results. Evaluation is not an isolated event. It is continuous and ongoing. Simply taking the results of a test and making an assumption that the work is valid, is a very near-sighted view of evaluation. Evaluation and research must work hand-in-hand. Evaluation will show the strengths and the weaknesses, but the research will reveal the cause of the effect, provided that the researcher is aware of the extraneous factors such as: history, maturation, testing, statistical regression, experimental mortality, selection bias, and instrument variation. Figure 3 (page 20) shows the program components.
Figure 3. Program Components

Diagnosis of Needs and Problems

Program Objective

Evaluation Criteria

RESEARCH

Manager, Process Collection of Data

Evaluation Assess Data

Evaluation Assess Data

Action Modification

Conduct Evaluation Conference

FOLLOW-UP AND TESTING
EDUCATIONAL WASTAGE

A lack of well planned research work in education has resulted in problems relating to students repeating classes and dropping out of school. Wastage is related to various obstacles which prevent an educational system from achieving its goals; mainly refering to dropout and grade repetition by groups of pupils within a specific course of education. The repetition of a grade within the course, or the dropping out before its completion, are both considered wastage.

In this respect, a "repeater" is defined as a pupil who throughout a given school year remains in the same class and performs the same work as in the previous year. The repeating of a class is considered as wastage since those repeating reduce the enrollment capacity of that class, thus preventing other children from being admitted, or causing overcrowding which raises the cost of education. And when a pupil leaves the school before the end of the year, it is considered wastage in that the pupil who drops out has not achieved the educational objectives of the course, yet the pupil's budget has been calculated for the entire year.

The study prepared by the Division of Statistics on
Education of the Office of Statistics of UNESCO for the 39th Session of the International Conference on Education (Geneva: 16-25; Oct., 1984), gives the following information based on repeaters:

In Africa the percentage of repeaters varies from 0.0 percent (Sudan and Zimbabwe, which apply automatic promotion) and 46.6 percent (Sao Tome and Principe) with a median of 16 percent.

In Asia and Oceania this variation ranges from 0.0 percent for the countries with automatic promotion (Republic of Korea, Japan, Malaysia, and New Zealand) to 18 percent (Bangladesh), with a median of 8 percent.

Latin America and the Caribbean region comes between these two regions, ranging from 4 percent (Guyana) to 26 percent (Suriname), a median of 12 percent.

Europe and the USSR represent the lowest median value (2 percent) and most of the countries have less than 5 percent repeaters.

Table I (pages 23 and 24) displays the percentage of repeaters for 121 countries and territories, including 42 in Africa; 24 in Latin America and the Caribbean; 32 in Asia and Oceania; and 23 in Europe and the USSR. The statistics for repeaters in Australia, Canada and the United States of America were not included, but the number must be large since their populations are also large.

A system is said to be "efficient" when maximum output is obtained on the basis of given factors or when a
<table>
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<tr>
<th>PERCENTAGE OF REPEATERS IN PRIMARY EDUCATION</th>
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<td>30% and Above</td>
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<td>Zaire</td>
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<td>Guinea</td>
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<td>Chad</td>
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<td>Sao Tome and Principe</td>
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<td>United Republic of Cameroon</td>
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<td>25-29.9%</td>
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<td>Mali</td>
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<td>Cape Verde</td>
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<td>Guinea-Bissau</td>
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<td>20-24.9%</td>
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<td>Sierra Leone</td>
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<td>15-19.9%</td>
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<td>EUROPE AND THE USSR</td>
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given output is obtained on the basis of minimum factors. In order to evaluate inefficiency or wastage the factors involved and the output of the system must therefore be defined in measurable and comparable terms. In the field of education this poses many problems, particularly with regard to defining output which itself depends on the definition of the system's objectives.

While recognizing the diversity of the objectives of an education system, statisticians and planners are frequently required to measure the output of the system in simple terms. One approach is to consider the output of a given course of education as the number of pupils successfully completing it (by obtaining a certificate). This is obviously a rather restrictive definition, since there is no doubt that pupils who drop out have acquired some of the knowledge which the system was designed to transmit to them. A fuller definition of output should, therefore, take account of the education acquired by pupils who do not complete their studies. This method of measuring output does nevertheless provide an insight into the functioning of an education system.

The factors in an education system include the buildings, teaching personnel, textbooks, etc., and their
aggregate may be measured in financial terms by annual expenditure per pupil. However, one indicator of factor consumption which may be used to measure output by the number of school-leavers is the number of pupil-years consumed by a cohort. A pupil who spends one year at school is considered to have consumed one pupil-year.

Wastage is a problem facing the whole world due to lack of research work. Let us think of different businesses around us: "Why do they fail?" or "Why is it that some have been good and are still perfect?" The fact remains that the good ones are doing good research work, they plan ahead looking for long-term progress. Education does not end -- it is a life-time process, generation after generation. People in education need a deep knowledge in research work so that they can plan for the benefit of pupils and minimize the wastage.
STRATEGIES FOR IMPROVING THE APPLICATION
OF RESEARCH FINDINGS

Educational research may have become a fashionable
activity, but it does not seem to satisfy, in the de-
veloping countries, the needs of its clients: the
policy makers, supervisors, administrators, and tea-
chers. This research, therefore, will examine and ana-
lyze existing conditions affecting the application of
research findings to improve teaching/learning prac-
tices.

As discussed earlier, one of the problems identi-

died is related to technological and methodological
weakness. This situation points to the need for a sys-
tematic and intensive training of the researchers and
practitioners in the nature and methods of research.
The training must equip the researchers with the knowl-
edge, skills and attitudes needed to undertake research.
Courses in research methods could include a component
addressing issues of utilizing research findings. This
would help to develop in them an appreciation that they
must do more than simply produce a report if they want
their findings to be used. Such skills may be enhanced
through professional courses in teaching training
institutions or through inservice programs. Closer attention to these needs could bridge the gap between researchers and practitioners.

As a consequence of the lack of understanding of the nature and methods of research, practitioners are often unable to translate research findings to actual practice in the field. Research findings are not fully appreciated and given due importance. As such, there is a need to set up a mechanism to guide practitioners in the full use of research findings. This mechanism may be a coordinating body set up at the national level which will be responsible for getting research findings analyzed, synthesized and presented in forms understandable to the practitioner. In cases where such mechanisms already exist, their functions must be vitalized and strengthened to facilitate the use of research findings.

In the participating countries, the most common way of disseminating research information is through publications. This method has been found wanting. To be more effective, this method should be supplemented by varied channels of dissemination including lecture, forums, meetings, conventions, press releases and whenever
possible, a cooperative undertaking of research tasks.

The conventional printed word is no longer adequate or appropriate to disseminate research findings. Conferences and seminars may be organized where research findings can be discussed in depth for better understanding and fuller appreciation.

If research findings are to be fully used, dissemination of information must recognize the sociological, interpersonal linkages among people. By working within sub-groups of people, changes based on research can be more easily brought about.

It is the linkage that developing countries still lack, but this would only indicate that the research work was not well done. Clearinghouse facilities need to be established or strengthened and perhaps better computerized to facilitate access and implement results. As far as practicable, the implementing agency should describe ways of participation and commitment by all parties. It is, therefore, necessary that a linkage among the different agencies involved in policy formulation, planning and implementation be developed so that research results can be increasingly useful.

Evaluation is a very vital component. It becomes
a very necessary condition for the conduct of the total program towards achieving its objectives. It is of major importance that an evaluation feedback and renewal mechanism be installed. Such a system requires a mechanism of diagnosis, appraisal, feedback and remedial action at all stages of the program. Feedback is a mechanism that serves as a basis for continuous assessment and modification. Improvement results from the feedback. Since there is no such model that will fit research programs, the development of models should be a continuous process.
SUGGESTIONS FOR IMPROVING THE APPLICATION OF RESEARCH FINDINGS

In the continuous search to see how education can be improved, the following suggestions should be useful to improve the operational systems for the planning, implementation, dissemination of research in education.

A systems approach should be recommended when developing a national policy for understanding research and the application of its findings of conceptualization, dissemination, application, and evaluation.

Conceptualization

From the conception, it is important that the principle of participatory planning be adopted, with full involvement of researchers, policy-makers and users of research. The establishment of a national research commission comprising of representatives conceived and well coordinated, should be established.

Before research is undertaken, the commission must be clear about the nature, function and uses of research. It should view education as an integral part of society and education research as an important and interdependent component of the education system. This would assist
the commission in identifying the type of research most appropriate for the problems at hand.

Finally, the identification of research needs by the commission should take into consideration the views of both researchers and practitioners at the national, provincial and local levels. The use of fully tested instruments would ensure that needs assessments would be carried out in a scientific manner.

**Formulation of Design**

The research design should take into consideration the need to view research and its application as links in the same continuum. It is important that there should be a balance between quantitative and qualitative methods that are used by the researchers. Acquaintance with the merits and demerits of alternative models of research would help those responsible for the formulation of research designs to avoid being overdependent on any one model.

In planning for research, the commission should ensure that although a substantial amount of theoretical and basic research would still have to be promoted, greatest use should also be made of research and
development as well as action research models.

It is necessary that the research design should be tried out before implementation, not only with respect to the administration of the research itself, but also in terms of the sequence for dissemination and application.

**Training**

In order to institute a logical mechanism for the implementation of a research project, it is first necessary to establish a regular and systematic training program concerning research and its utilization. An effective means of training in the formal inservice course of three to six months provided by Universities and other tertiary institutions. Shorter courses for interviewers and research assistants could also be held according to the needs of any particular research project. These normal channels for training should, however, be supplemented and complemented by the adoption of a clinical approach, whereby potential researchers are attached to research institutions for designated periods to work under the guidance of experienced researchers.
Collaborative research programs involving members of research teams from national, provincial and local levels would further orient all those concerned to the multi-dimensional problems of educational research and development.

**Implementation**

At the implementation stage, it is necessary to ensure that the administrative and professional components of the project network are fully coordinated and synchronized. The yearly provision of financial and other resources to the institutions and agencies involved would help obviate the necessity to interrupt research activities at any stage of their implementation.

The establishment of a professional support system for a research and development project should receive careful thought and consideration. Administrations and other users of research should be sensitized not only to the need for a practical support network, but also to the realities of the research sequence in which research instruments and research findings have to be tried out and validated before they can be
approved for implementation.

Dissemination

One of the most crucial factors underlining the success of a project is its dissemination to those at all levels of its administration and implementation. A carefully conceived strategy for dissemination would include the establishment of a permanent agency which could fulfill this function.

The creation of such an agency will help ensure that research reports are continually received and carefully scrutinized for further stages of project implementation. To help reduce the gap between researchers and practitioners, the research findings should be published in technical as well as layman's editions. In addition, the preparation of a detailed administrative handbook, setting out the steps and procedures for the application of the findings, would be of immense benefit to those ultimately responsible for project implementation at all levels of the network.

To complement the dissemination of research findings through publications in these various forms, there should also be avenues for wider publicity. Press
releases and special programs over radio, television and other media, would help promote the understanding and responsiveness of the general public and teachers in the field to research and its application. In addition, seminars and workshops specially convened to discuss research findings, and the measures to be taken to implement them, should be featured prominently in any strategy for dissemination.

Application

It is the teacher who would, in the final analysis, be responsible for translating the findings of research into practice in the classroom. An atmosphere conducive to research-based teaching must be cultivated so that fear of research and distrust of researchers on the part of the teacher can be minimized. One of the ways in which this could be effected would be to involve teachers in the preceding steps of research application. Active encouragement of action research at the school level would also help prepare the teacher for involvement in gradual stages in the application of more sophisticated forms of research.

Teacher attitudes and behavior are crucial factors
in the cultivation of desirable teaching/learning practices in the classroom. Care must be taken to sustain the positive attitudes and high motivation that teachers normally display during training and active involvement in curriculum projects. Effort should also be made to devise mechanisms for the transmission of the enthusiasm of project teachers to their colleagues at the school level. The promotion of school-based training and development projects could be one of the ways in which this could be achieved.

Besides the cultivation of professional zeal and other intrinsic measures, other factors that would minimize teacher resistance to research based teaching should also be considered. These include the improvement of classroom conditions, such as teacher/pupil ratios, class sizes and the provision of adequate facilities, equipment and materials.

**Evaluation**

Finally, evaluation should be integrated into the various stages of any research application model. Results of the evaluation exercise should, in turn, be channeled into the implementation scheme for continuous
course correction and to ensure the renewal of the program.
CONCLUSIONS

If research is to become an effective instrument for educational reform, it must be accepted by all concerned as an integral part of the educational process. Administrative teams should find out through well-planned research as to whether the proposed plans and allocated resources are of any use because too much or too little can be imposed and some needs may not be respected. The ministry of Education should respond positively to any information given after the research and be able to design an educational communal project to suit the conditions and needs. To avoid teachers feeling powerless, administrators and supervisors should act positively through three approaches to educational innovation:

1. To modify the system - curriculum development and change in learning and teaching methods.

2. To transform the system - response to a rapid process of economic, cultural and technological change in the society.

3. To establish the system - by provision of alternative networks.
Teaching remains predominantly telling and questioning by practitioners. The great discrepancy therefore, is between teachers' perception of their behavior and the observed behavior.