

**EDUCATIONAL RESEARCH  
AND DEVELOPMENT IN  
KENYA**

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**REPORT OF A SEMINAR  
HELD IN MOMBASA, KENYA  
JULY 1980**

**BUREAU OF EDUCATIONAL RESEARCH  
KENYATTA UNIVERSITY COLLEGE**

**S E M I N A R   O N**  
**E D U C A T I O N A L   R E S E A R C H**  
**A N D   D E V E L O P M E N T**

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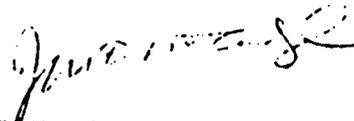
**Held at the Oceanic Hotel, Mombasa, 22 - 25 July 1980.**

## FOREWARD

The Bureau of Educational Research at Kenyatta University College was created to initiate and carry out long-term and fundamental research in the field of education; to assist public and private agencies through the application of methods and results of educational research to ongoing problems; to document and disseminate research materials; and to provide a venue for objective discussion and analysis of major issues in the educational field. In line with these functions, the Bureau has, from time to time, organized seminars for those involved in the educational process and administration at various levels.

The Mombasa Seminar which was held from 22nd to 25th July 1960 was particularly significant in that it brought together various individuals who have been directly involved in Educational Research from the University of Nairobi, Kenya Institute of Education, Kenyatta University College, the Council for Science and Technology, as well as Senior Officers from the Ministry of Higher Education and the Ministry of Basic Education. The theme of the seminar was Educational Research and Development. This report describes the proceedings of the seminar. It is a distillation of the papers that were presented at the seminar and the subsequent discussions. I would like to add that the report is an attempt to open questions, not to exhaust or foreclose them. For this reason, I would like the readers to pay special attention to the recommendations in the report for future action.

On the behalf of the Bureau of Educational Research, and indeed the whole of Kenyatta University College, I would like to thank the Rockefeller Foundation of New York for the financial support toward this seminar.

  
J. K. KODIANGE  
PRINCIPAL

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## BACKGROUND TO THE SEMINAR

A paper prepared for the seminar and delivered by Dr. George Fshiwani, Acting Director, Bureau of Educational Research, KUC

Nearly twelve months ago, the Bureau of Educational Research convened a meeting of researchers in education to examine the contribution of research to our national development. We found this to be an impossible task since most of the educational research which had been undertaken in Kenya over the last two decades was inadequately documented. It became clear in our subsequent meetings that educational research in Kenya seemed to have contributed little to the understanding of educational problems, many of which are critical. There seems to be little evidence that research findings have been utilized in decision-making, in policy-formulation, or in programme planning.

In an attempt to explain why research is not used, we came to the conclusion that it is not used for the following reasons:

Lack of interaction between researchers and policy-makers;

Lack of communication between researchers and potential consumers of research, and among the researchers themselves;

Lack of a research focus on current policy issues;

Lack of involvement by decision-makers in the research process to make sure that research studies relate to issues of importance to them and that research results will be applied;

Lack of public awareness of various findings and programmes. In general, the dissemination of research findings is very poor.

As pointed out in many public meetings recently, there is a growing demand by policy-makers for research. Leaders at all levels are asking for information on specific problems. For example, when it is reported that district Y has performed poorly in the C.P.E., the leaders in that district want to be given information that can explain the poor performance. They want hard data and not opinions.

Given the fact that educational problems are likely to become more extensive rather than diminish in the future, we can safely predict that the demand for educational research will increase proportionately.

It would be wrong to give the impression that nothing is known about education. Certainly, the research which has been undertaken so far, if it were applied, might result in immediate improvements. However, much remains that is not known.

This seminar on Educational Research and Development was called to address itself to the issues raised in the above paragraphs and to come up with recommendations on how these problem areas might be eliminated or alleviated. It is my sincere hope that this seminar will be able to develop or make a start in developing a machinery for coordinating the interests and activities of the users and producers of educational research.

The response which we received from all the people we invited to this seminar indicates the widespread concern with the purpose for which it was called. We are extremely grateful to the Rockefeller Foundation of New York, whose representative is here with us today, for its support without which it would not have been possible to convene this seminar. On your behalf, permit me to say, "Thank you" to the Foundation.

#### THE PURPOSE OF THE SEMINAR: THE GAP BETWEEN RESEARCH AND ACTION

A major purpose of the Seminar on Educational Research and Development was to initiate a dialogue between the researchers and the users of research, such as policy-makers, planners, administrators and managers. As noted by many of the speakers and participants, the leaders of the nation's education system are aware of the importance of research: of the value of basing decisions on evidence rather than untested assumptions, of anticipating problems rather than being confronted by them, of monitoring the adequacy of provision, utilization and attainment, of being sensitive to the need for innovation and of examining innovations prior to widespread adoption. Information, findings and analyses which could help in efforts to create a more efficient, effective and equitable educational system are needed and wanted. At the same time, although they would be the first to attest to the fact that much remains to be examined and analysed, the researchers in the field of education are often discouraged by the lack of awareness of their efforts and lack of familiarity with their major findings, not to mention failure to make use of their recommendations.

The seminar was conceived as the first step in what must be an ongoing effort to narrow the gap between those who need information and those who produce it. On the one hand, it gave some of the people who have undertaken research in education an opportunity to present summaries of their work. Thus, the participants had a chance to learn of specific findings and at the same time to become aware of the wide-ranging scope of investigated areas, of which

this meeting could provide only a small sampling. On the other hand, the decision-makers could express their needs, suggest their interests and concerns and indicate their priorities for future research activities.

However, the opportunity for personal interaction which the seminar provided was perhaps as important as the opportunity for the dissemination of information or the generated lists of recommendations for future research. Many - too many - of the seminar participants were in personal contact for the first time. There is no doubt that lack of personal interaction accounts, at least to some extent, for the limited impact of research on policy, programme planning and implementation. Written reports rarely reach the right desks at the precise moment that the information which they contain is needed. Even when they do, there is no guarantee that the potentially useful or relevant statements which are embedded in the often lengthy contents will be immediately evident to the busy decision-maker. The seminar showed all who attended that personal familiarity, informal discussion, interchange and exchange are integral to dissemination and preconditions for utility and utilization. This message, the demonstration-in-action of the benefit and mutual enrichment which occurs through dialogue perhaps represents the major contribution of the seminar to the goal shared by all participants - an improved educational system which contributes to the development of the nation and the lives of all Kenyans.

## THE CONTENT AND PROCESS OF THE SEMINAR

The speakers brought a variety of perspectives to bear on the examination of educational research. There were, first of all, a number of presentations which focused attention on the research activity itself - research goals, directions, activities, needs and impact. These presentations looked at research as an element within the social system, simultaneously reflecting, but also challenging, its prevailing trends. In total, these papers examined research in relation to national development, the operation of the education system, the pressures of donors and funding organizations, and, in more direct and immediate terms, as a process of communication between the researcher and the user, requiring systematic efforts to ensure accessibility, intelligibility and applicability.

The other major category of seminar papers were those which dealt with a specific research area, or issue. These issues were examined sometimes from the perspective of the questions for research raised by specific aspects of the educational system and sometimes from the viewpoint of the implications of research findings for action. The following eight substantive research issues were considered during the four-day seminar:

- Issue 1. Guidance and Counselling, Cognitive Development and Examinations
- Issue 2. Teaching
- Issue 3. Communication
- Issue 4. Access to Education
- Issue 5. Administration and Educational Development

Issue 6. Education and Economic Development

Issue 7. Political Education and Social Policies

Issue 8. Science and Mathematics Education

The presentations and discussions relating to each issue are summarized briefly in subsequent sections of the report.

Throughout the seminar, the stress was on informal interchange. Sitting in the rectangle of the board meeting or the conference was conducive to widespread participation in discussions. Most speakers adhered to the suggestion that they summarize the contents of their papers and highlight the major points instead of reading them verbatim, a feature which contributed to the listeners' interest and involvement. Discussion, which occurred either directly after a talk or else after several talks on the same research issue, was an important part of the proceedings, with everyone's voice heard frequently throughout the four days.

### THE OUTCOMES OF THE SEMINAR

As already suggested, perhaps the most important outcomes were the intangible ones of unity, personal association and awareness of common goals and concerns. The leaders of the education system reaffirmed their need for research, and the researchers confirmed their responsibility to link research to the practical problems of Kenyan education.

More tangible outcomes included recommendations of two sorts: those which proposed an ongoing machinery for coordinating the interests and activities of the producers and consumers of educational research, and those which pointed to priorities in the orientation and content of future studies.

#### Recommended Machinery for Research Coordination

The major seminar recommendation was the proposal to establish an Association of Educational Researchers. The functions of this association would include: identifying research priorities; improving research practice, documenting and disseminating research findings; creating channels of communication, consultation and interaction among researchers and between researchers and policy-makers, planners, administrators and educators.

It was further recommended that the organization of this association be handled by a Steering Committee to be composed of representatives from the NER, IDS, YIP, the Ministries of Basic and Higher Education and the National Council of Science and Technology, to be convened

by Dr. G. Eshiwani, Director, Bureau of Educational Research, KIC.

The following terms of reference were formulated for the Steering Committee.

1. The Steering Committee should have powers to coopt additional members;
2. The Steering Committee should be responsible for the formulation of the Association of Educational Researchers.
3. The Steering Committee should seek funds to support the establishment of the Association.
4. The Steering Committee should issue periodic reports of its progress to all seminar participants.
5. Pending the establishment of the Association, the Steering Committee should continue to promote interchange between seminar participants.
6. One form of this interchange should be the formation of sub-committees of all participants at this seminar. The sub-committees should report to the Steering Committee and, in turn, the Steering Committee should issue quarterly reports of their meetings, as well as other events of common interest.

It was further agreed that the seminar report will be prepared by the Bureau of Educational Research and distributed to all participants.

## Recommendations Regarding Research

### The Research Process - Identified Needs

- . Greater use of existing opportunities and resources for research, such as the CBS data, practice teaching, students-in-training, MA and PhD candidates.
- . Increased opportunities for long-term research.
- . Increased opportunities for interdisciplinary research.
- . Greater encouragement of high quality research.
- . A forum for scholarly interchange between researchers.
- . A forum for interchange between researchers and policy-makers.
- . Increased awareness of the importance of data for decision-making among potential users of research.
- . Increased research consciousness among potential users of research (including students).
- . Local journals to disseminate locally conducted research and research from elsewhere of relevance to local problems.
- . Coordination of research.

### Recommended Research Priorities

#### Equity of the Educational System

Equity issues involve identifying the differentials between regions, school types, social classes, sexes, and sometimes special groups such as the pastoralists or the handicapped.

These differentials should be examined in terms of the influence of wider social processes (economic, social and political) and or their influence on these processes, especially class differentiation, income distribution and social mobility.

#### Equity of Access

- . Differentials in coverage (i.e. the proportion of the school-aged population enrolled at different levels, in different types of schools).
- . Special issue - who is using boarding school in the pastoral areas?
- . Patterns over time.

#### Equity of Provision

- . Differentials in classrooms in relation to enrolments.

- . Differentials in teachers, by qualification and experience, in relation to enrolments.
- . Differentials in facilities and amenities, in relation to enrolments and in terms of quality.
- . Differentials in the availability of administrative and professional resources.

#### Equity of Selection From Level to Level

- . Differentials in dropouts, retention, performance and continuation.
- . Selection procedures.
- . Patterns over time.

#### Special Issues

- . Consequences of policy shifts or changes in practice.
- . Comparison with other African countries with similar problems.

#### Relevance of the Educational System

Relevance issues involve an assessment of the closeness of the relationship between the content of the school experience and the skills, attitudes and behaviours required by the society to achieve development objectives. It includes questions of retention and utilization of the knowledge and skills acquired through formal education.

#### Identification of Needs

- . Knowledge and skills needed by school leavers (primary and secondary) in light of Kenya's economic and social goals.
- . Knowledge and attitudes needed by school leavers (primary and secondary) in light of Kenya's social, cultural and political goals.
- . Continuous and updated information on job opportunities, employment needs.
- . Job specifications and certification requirements.
- . Special issues - the primary school leaver, the skills required for agricultural productivity.

#### Relevance for Employment

- . The absorption of primary and secondary school leavers into the economy.

- . Actual skills and knowledge of primary and secondary school leavers.
- . The allocation system.

#### Relevance for Agricultural Productivity

#### Relevance for Technical Competence and Technical Training

#### Relevance for Self-Employment

#### Relevance for Attitudes

- . Attitudes, norms and values promoted and acquired at different levels of the educational system.

#### Relevance for Rural Development

#### Special Issues

- . Consequences of policy shifts or changes in practice.
- . Comparisons with other African countries with similar problems.

#### Efficiency and Effectiveness of the Educational System

##### Wastage and Repetition

- . Who is dropping out? For what reasons?
- . Migration.

##### Performance and Attainment

- . Effect on performance of factors such as provision, repetition, pre-school experience, school size, examination questions, language of instruction, overenrolments, overcrowding, streaming, prevalence and effect of private coaching.
- . Identification of the aspects of provision which can be considered to have a significant impact on performance.
- . Cross-sectional data on the characteristics and concerns of non-high cost schools.

#### Effectiveness of Instruction

Issues related to effectiveness of instruction centre in the need to find the best way to achieve educational outcomes. They thus usually involve comparisons between alternative methods, strategies, designs and delivery systems.

- . The optimum balance between the academic and practical in order to develop agricultural and technical skills.
- . Comparative effectiveness of different approaches to concept development.

- . Effectiveness of specific curriculum changes such as PEP, KPM.

### Effectiveness of Educational Programmes and Support Services

Programme evaluation should include attention to the planning and development process, staff training, management and monitoring. The questions of equity and relevance are equally applicable to any sub-system or programme as to the total educational process. Some areas of investigation include:

The process of curriculum change, the development of new syllabuses, materials and retraining of teachers.

- . The process of communication between the Examination Unit and the schools.
- . The TACs and other professional support systems.
- . School milk scheme.
- . Guidance and counselling.
- . Special education.
- . EMS.
- . School Equipment Scheme.
- . In-service training programmes.
- . Correspondence Unit, IAS.
- . A detailed analysis of the types of educational innovations which have proved effective.
- . The implications of the proposed 9-year education cycle, including teacher training; provision of resources, physical facilities, materials and equipment; access to secondary school; utilization of the end product; the process of linking to changing manpower resource needs.

### Management and Administration of the Educational System

#### Educational Planning

#### Supervision

#### Economics of Education

#### Costs and Returns

- . To individuals and families - the effects of both costs and returns on welfare, income and life chances.

- . To communities - including studies of self-help.
- . To the nation.

### Economics

### Special Issues

- . Effectiveness of the abolition of school fees.
- . Costs of changes recommended by researchers.

## Educational Personnel

During the seminar the emphasis was placed on teachers. The issues are equally applicable to other groups, such as, for example, school heads, training college staff, administrators.

### Training

- . Selection criteria and tools.
- . Training objectives - the skills, competencies and behaviours of successful teachers.
- . Training objectives - task analyses of teachers' roles and activities.
- . Effectiveness of various training methods to develop skills, competencies and desired behaviours.
- . Optimum length of the training programme.
- . Relationship between training and job-performance including comparisons of trained and untrained teachers, factors which affect the performance of beginning teachers.

### The Profession

- . Career patterns.
- . Mobility: promotion, demotion, transfers, leaving.
- . Morale.
- . Placement.

## The Pupil

### Socialization and Learning

- . Perception.
- . Cognition.

- . Process of moral development.
- . Development of competencies and attitudes.

Pupils' School Behaviour

- . Causes of unrest.

Case Studies of Classrooms and Community-School Relationships.

THE SEMINAR PROCEEDINGS: THE KEYNOTE ADDRESS

The keynote speaker originally was to have been the Vice-Chancellor of the University, Professor J.M. Mungai. His participation in the Leaders' Conference prevented his attendance at the seminar, and Professor W.M. Senge, Director of the Institute for Development Studies at the University, was requested to take on the responsibility of the keynote address. In the paper which Professor Senge prepared for the seminar, he admirably addressed himself to both of the major themes of the conference - the place of research within national development and the topics or issues which require the attention of the research community. The following paragraphs briefly summarize some of Professor Senge's main points.

The major goal of educational research, as well as other research within the social sciences, should be changed. The clarity and precision which research brings to the examination of issues are not ends in themselves but means to influence development strategies and processes, at both the design and implementation stages.

Achieving this impact depends upon: imaginative approaches in the selection and formulation of research problems, the use of appropriate tools and methods, and the intelligent communication of research results. In addition, there is need to improve relations between researchers and government personnel which now seem often characterized by suspicion and hostility. Even if relationships improve, the experience of the IDS suggests that when policy mechanisms are not responsive to suggestions emanating from outside the system, especially at the design and conceptualization stages, the impact of research will be limited.

Educational research which is to have an impact on development

policies must focus on how well the educational system is relating to the nation's development goals. Isolated evaluations of specific programmes, although important, fail to help policy-makers understand the intersection of education with the nation's development objectives. Those who are entrusted with research should mount studies on the following issues if research results are to be tools for change in the development process. The issue of the relationship between education and employment provides researchers with a wide range of questions, including, for example, the role of the school in regard to social mobility and income distribution. The national objectives of improved technology and universal literacy raise the need for research which compares the effectiveness of various strategies and modalities. Given the high rates of public and private expenditure on education, it becomes imperative to examine more closely the economics of education for the individual family (as, for example, the effect of educational expenditures on family nutritional levels) and for the national economy, and also to identify ways of introducing economies of scale. Since pre-school education recently has become within the ambit of the Ministry of Basic Education, the economics of pre-school care deserve special investigation in order to identify the effects of expanding public services to this level. Of paramount importance is the extent to which the goals of improved access and equity are being realized. In addition to attendance, dropout and repetition rates for regions, communities, social classes and members of each sex, there is need to investigate the difference in the quality and efficiency of provision for these various subgroups within the nation. And bringing the consideration of topics full circle, there is need to explore the effects of differences in access and quality on the perpetuation of inequalities and increased polarization between subgroups.

Although the establishment of the National Council for Science and Technology is an important step towards the coordination of research, there is still a need to bring under one umbrella all institutes and groups doing research in Kenya to improve the organization, coordination and communication of research activities.

THE SEMINAR PROCEEDINGS  
PAPERS FOCUSING ON THE RESEARCH PROCESS

Production, Dissemination and Utilization of Research in Kenya  
Professor P. Gacii, Secretary, National Council of Science and  
Technology

Globally, there is a strong correlation between economic development and investment in research and experimental development. For example, in 1973, the developed countries absorbed 97 per cent of the world's R & D funds which amounted to 96 billion dollars, while the developing countries accounted for about 3 per cent. Kenya ranked high on the African continent by expending approximately 0.7 per cent GNP, while the average figure was 0.34 per cent. Although these global figures are heavily weighted towards scientific and technological research, it is assumed that social research, including educational research, shows the same pattern.

The Kenyan government's investment in research for both recurrent and development programmes in various public institutions will amount to million £ 7.6, £ 11.3, £ 12.2, £ 13.6 and £ 15.0 for the financial years ending June 1979 through 1983. Although the bulk of the money goes to public institutions, a comparatively small amount of £1 million per annum will be administered by the NCST to support non-institutional research. These sums are substantial, and the major constraint in R & D development will be the lack of experienced and dedicated researchers who can produce decent and tangible results.

Most of the research in Kenya is institutionalized, as can be seen from the following examples. The Ministries of Agriculture and

Livestock Development have a network of research stations with programmes aimed at increasing food and animal production, proper utilization of land and the protection of animals and crops. In 1979, the Ministry of Agriculture in collaboration with the National Council for Science and Technology established the Kenya Agricultural Research Institute, a parastatal body which will absorb most of these Ministries' research programmes. The Ministry of Environment and Natural Resources undertakes research on fisheries through the recently established Kenya Marine and Fisheries Research Unit and on wildlife through the Department of Wildlife Conservation and Management within the Ministry. In the Ministry of Industry, research is carried out by the Kenya Industrial Research Development Institute, the Kenya Industrial and Training Institute, the Kenya Industrial Estates and the Village Polytechnic Unit. The Ministry of Health's research is performed by the Kenya Trypanosomiasis Institute and the Kenya Medical Research Institute which has programmes on malarial and vector-borne diseases, tuberculosis, virus research and leprosy. The little research within the Ministry of Water is being done by the Water Quality and Pollution Control Section. The research for the Ministries of Education is conducted by the Kenya Institute of Education. In addition, in the University of Nairobi and Kenyatta University College, research is carried out in all disciplines by the undergraduates, postgraduates and members of the academic staff. The National Museum which is under the Ministry of Constitutional and Home Affairs undertakes research as part of its normal duties.

In addition, research is conducted by international organizations (such as ICIPF, International Centre for Physiology and Ecology and CIMMYT) and private organizations.

Research in Kenya is disseminated through publications, such as local and international journals, periodical and annual ministry reports, and university dissertations and theses; the Voice of Kenya radio and TV; extension officers; seminars and conferences; shows, exhibitions and demonstrations and teaching. However, very little useful research information spreads to the common man, and research results which find their way most easily to the general public are those with practical applicability. There also is a clear need to establish local journals to disseminate locally generated research and research from elsewhere on local topics.

The Role of Research in Teacher Education in Kenya Mr. J.K. Koinange,  
Principal, KIC

If as a college, we are supposed to discharge the responsibility of the effective training of teachers, we need to be guided by more than tradition and opinion. A number of aspects of the teacher education programme need the scrutiny and assessment of the researcher. One is the selection of candidates. At present, we know too little about the qualities which predict the successful teacher. Admission is based on examination credentials only, and screening is rudimentary. In consequence, we are faced with a high rate of wastage, as those who enter teaching, especially at secondary levels quickly leave the profession.

A second aspect of teacher education in which there is need to highlight current weakness and propose tested alternatives is training. Our training should be based on a careful differentiation and task analysis of the various aspects of teachers' roles and activities, a further analysis of the skills and competencies

required for these tasks, and the use of experiences and methods which have been found to contribute to the development of these outcomes. Thus, improved training requires a more precise identification of teaching skills - teachers' behaviours which have the greatest impact on pupils' learning - and also a more rigorous testing of training methods. Identification of teaching skills could be carried out through: laboratory studies, classroom studies, experimental studies and correlational studies. A major training issue concerns the value of theoretical courses. Many students complain that there is no relationship between theoretical courses and classroom work. We need to test their criticism as well as our traditions.

We also need the help of the researcher in providing us with feedback. Teacher education programmes know little about students' subsequent performance: whether they put their training into practice and, if so, to what effect. Without this kind of information, our programmes will never be self-adjusting. A special focus should be the beginning teacher: the effect on the beginning teacher of different types and amounts of supervision, of peers and of pupil behaviour.

Although the aim of the research we have advocated is improved practice, we should not overlook the need for more basic knowledge from which practice can be derived. Adequate research in teacher education in Kenya must combine applied and basic research on cognitive development and the socialization process, as well as the behaviour of children and adults in educational situations.

The research venture is beset with many problems: lack of finance, lack of institutional support, unavailable or inadequate data, inaccessible journals and other reference material. However, the

opportunity for interaction between researchers can help to improve the theoretical bases and methodological designs of the work which is carried out. Seminars, round-table or semi-formal discussion groups would assist in a shared communication of research concerns, the development of new models for organizing research and the dissemination of findings. An association of educational researchers could help in identifying research needs, setting priorities, establishing policies, coordinating activities, advising the government and other organizations, publishing journals and periodicals, and disseminating information through clearinghouse activities.

Priorities of Educational Research in Kenya Mr. D.M. Mbiti,  
Chief Inspector of Schools, Ministry of Higher Education

Educational research can be defined most broadly as any activity which leads to a better understanding of or insight into educational problems and produces information which is relevant to policy formulation, programme planning and improved educational practice. Thus, students, teachers, tutors, inspectors and education officers can be interchangeably researchers and potential users of research findings.

The four main centres associated with educational research in Kenya are the Bureau of Educational Research, at Kenyatta University College; the Institute for Development Studies, at the University of Nairobi; the Research and Evaluation Section of the Kenya Institute of Education; and the Research and Development Unit in the Examinations Section of the Ministry of Higher Education (now the Kenya National Examinations Council).

A glance through the list of research projects undertaken by those centres would tend to justify the criticisms that the findings of

many research projects have little immediate application to national problems: few of the research topics seem relevant to the problems of education; much of the research has been excessively academic and theoretical; often research stops with an analysis of problems rather than exploring possible solutions and providing accurate information, based on trials and pilot studies, of the possible consequences of shifts in policy or changes in practice. In addition, educational research has been hampered by the following problems: shortage of skilled manpower, inadequate funding, the limited time of researchers who also generally have to carry heavy teaching loads, and the lack of cooperation of ministry officials in making data readily available.

When charting the future priorities for educational research, it is well is well to bear in mind the steepness of the educational pyramid and the growing numbers who disappear from the formal system at the end of each cycle. These serious pressures on the educational system and on the job market establish the context of public and official concern to which it is hoped that educational researchers will address their investigations. For example, approximately 340,000 children are enrolled for this year's CPE examination. Only about 120,000 will be selected for Form I. Just over 100,000 candidates will take the new Kenya Certificate of Education this year, and only about ten per cent of them will find their way into Form V. About 10,000 students will sit for the Kenya Certificate of Advanced Education, and only a small proportion will go to the University.

In the light of these factors, the immediate priorities for educational research are: the effectiveness of the learning imparted

in the schools; education and employment; imbalances in the distribution and quality of educational opportunity; educational planning; management and administration; costing and the financing of an ever-expanding educational system; and evaluation. When looking at the quality of learning, it is important not only to examine the effectiveness of current instruction but also to determine the knowledge and skills which are needed in view of Kenya's social, economic and political goals and the extent to which these are catered for in the current curriculum. This is closely related to some of the major research questions within the area of education and employment which ask what primary school curriculum is most suited to the needs of the terminal pupil. Answers to this major research question depend, in part, on increased knowledge about the primary school leavers - where they go, what they do and the job opportunities which are available to them. Although much has been written on imbalances in the distribution and the quality of educational opportunity, it is important that those who suggest solutions to these problems also carefully examine the viability and cost of their proposed solutions.

In order to improve communication between researchers and policy-makers, administrators should be involved in the research process - helping to define issues and problems areas, taking part in the operation of the research study and participating in interpreting the results. In addition, it is the responsibility of research institutions to ensure that research is properly coordinated and that it is adequately and efficiently disseminated.

Education and Development in Kenya: An Introduction to Issues,  
Literature and Source of Information Drs. David Court and  
Kabiru Kinyanjui, Institute for Development Studies, University  
of Nairobi

This paper is a bibliographic essay which identified some of the themes and approaches which characterize research on education in Kenya. It concentrates particularly on research which concerns the interrelationships between education and the social context, or in the terms used by Professor Senge, the intersection between education and development objectives.

The first part of the paper summarizes the main sub-disciplines into which the study of education has been divided and makes reference to several of the Kenyan writings, as an introduction to and example of each type of study. The disciplines which have been used to study aspects of Kenyan education include: educational psychology, history, economics, sociology, political science and political economy.

Research also can be categorized in terms of the problems or issues which are addressed. The second part of the paper provides a brief introduction to the following research issues and to the main writings within each area: education and work; wastage and repetition; education in the pastoral areas; the language of schooling; selection and allocation; education and women; literacy; the social cultural and political purposes of education; artistic education; special education; self-help in Kenyan education; higher education. Although these issues are not the only problems which have concerned educational researchers, they are among those which are prominent in educational policy, and they all relate to one of the two fundamental and overarching issues in Kenyan education: the

issues of relevance and equity. Each of these issues is discussed at some length in the third section of the paper.

The fourth section of the paper summarizes the main differences between the two major positions which have been taken by researchers on the relationship between education and social change: the reformist position, which emphasizes the influence of the educational system upon different aspects of development, and a more radical position which stresses the extent to which the education system reflects and reproduces the existing pattern of social relations. The final section of the paper lists the main sources of information on educational research.

The section of the paper which was presented in some detail at the seminar was the fifth section on the organization of research. This section of the paper draws attention to the greatly increased demand for research - usually programme evaluations on a contract or commission basis - by ministries and international agencies. In the past, researchers and research institutions tended to pursue their own, often academic interests; now, much of the research which is not for a thesis is commissioned.

This trend has several advantages. It ensures that educational research is directed towards urgent practical problems. It places a premium on productivity through in-built incentives and sanctions. It is likely to be read, and even likely to be used. However, the strength of the demand for contract work has several disadvantages. It tends to commercialize research, to concentrate talent upon short-term evaluations and to erode a desirable degree of autonomy by reducing the scope which research institutions have for initiating their own work. The demand also leads to over-extension, and the pressure to produce recommendations leads to an inevitable reduction

in the quality of the research. Furthermore, this work rarely enters the general literature or the stock of teaching materials because it is often restricted in circulation and frequently more easily available to international organizations than to local scholars.

It is important that the high demand for short-term programme evaluation does not shape the character of Kenyan research. Although few of us are likely to repeat the quality and rigour of our thesis research, individuals and institutions need to retain some scope for both defining their own interests and pursuing sustained lines of enquiry. Two specific types of research would seem to be useful in complementing the parochialism and narrow focus of the programme evaluation: studies which compare the policies and programmes of other African countries to the Kenyan response to a similar development problem; and detailed analyses of types of educational innovations which have been tried in Kenya - an activity which goes beyond the single-project focus of the evaluation to the formulation of general conclusions from the accumulated experience of different programmes. A third important line of research activity which should be undertaken is the recasting, disaggregation and analysis of available statistics published by the Ministries or the Central Bureau of Statistics. The Education Sector Analysis at the CRS provides an example of work of this kind. At the same time, it is important that we do not forget the detailed case study of classrooms and communities which alone can provide the depth of insight necessary to complement statistical analyses or project evaluations.

A fifth type of work which goes on and seems worth preserving is the systematic research projects of students under the "teaching through research" model. Teaching practice for students and staff from the Faculty of Education provides an opportunity for this kind of

training and information gathering. MA theses are becoming one of the most valuable sources of independent work on the education system, but much of the extensive work which has been done on education in Kenya is "hidden" in theses and dissertations. It would be useful to have a qualitative assessment of this work as a way of obtaining whatever useful conclusions that can be derived and also of drawing some lessons for future styles of research activity.

There may be a risk that the external demand for research will fragment the research community by establishing lines of communication between the individual and the sponsor or government department, rather than between researchers themselves, with correspondingly harmful effects for the development of professional norms and practices, and for the quality of the completed work. There may be merit in thinking about ways to strengthen patterns of communication through journals, associations or seminars.

The Role of the Central Bureau of Statistics in Educational Research  
Mr. F.A. Opondo, CBS

Unlike research institutions such as the IDS and the Bureau of Educational Research, the CBS is a department charged with the task of collecting, processing and analyzing data in response to the demands of planners and other consumers. In collaboration with the Ministries of Education, the CBS undertakes the annual census of primary and secondary schools, which is the major source of national data on school provision and enrolments. This census is used in the preparation of the Annual Reports of the Ministries of Education, and also to respond to requests from within the Ministries and the research community. The questionnaire has been progressively elaborated and now includes: enrolments by age, sex, class and citizen-

ship; exam results; school equipment and facilities; the qualifications, citizenship, experience and teaching responsibilities of the staff; school fees; and school type, classification and catchment area. The yearly collections of data from the schools since 1974 have been computerized. Beginning with the 1980 census, it will be possible to disaggregate data to the sub-district and even the school level.

The CBS is currently developing additional surveys to improve the quality of educational data. One is an end-of-year enrolment survey and another is a post-census survey. In addition, the CBS is collaborating with the Ministries of Education on the Kenya Sector Analysis Project, funded by USAID and the Rockefeller Foundation. This project seeks to encourage the analysis of the access, efficiency and relevance of the educational system. A number of researchers are preparing reports on aspects of these topics which will be published by CBS. Publications already available through the project are: Methodological Document No. 1, Social Perspectives, Vol.2, Nos. 5 and 6, and Educational Trends, 1973-1977. The project also has made possible a number of recent improvements in the collection and processing of the school census and the experimental work on the end-of-year and post-census surveys.

A number of other CBS surveys contain information of use to educational researchers: the Integrated Rural Surveys (IRS), especially the Literacy Module (IRS II), the Nutrition Module (IRS II and IV), the Non-Formal Education Module (IRS IV) and the Division of Labour Module (IRS IV). Other relevant surveys are the National Demographic Surveys (NDS) and the Kenya Fertility Survey (KFS). The CBS will undertake a national literacy survey later this year which will be the first comprehensive effort to test the ability

of the respondents to read and write in the vernacular, Swahili, and English.

The CBS is willing to make available to researchers reports and tabulations of all surveys and to undertake additional cross-tabulations in request. This collaboration gives researchers access to the basic statistics on almost every primary and secondary school in the nation; it gives the CBS feedback which will help to improve the quality and utility of its annual data collection.

Recent Educational Research in Kenya: Issues and Patterns  
Dr. G.S. Eshiwani, Acting Director, Bureau of Educational Research, KUC

The study, which is the beginning of a longer work, is a response to the need for information concerning research which has been undertaken on various aspects of education. Without this kind of documentary review of completed work, educational research in Kenya will continue to be characterized by overlap, wastage of resources.

This study of the educational research which was undertaken between 1963 and 1980 is the beginning of a longer work which responds to the need for easily retrievable information about completed work. It is intended to promote coordination, better use of research, interaction between researchers and practitioners, and improved utilisation of research findings.

All research studies were classified into seven major areas or issues:

- . Administration and Educational Development
- . Access to Education
- . Education and Economic Development
- . Student Evaluation
- . Teaching
- . Communications
- . Political Education and Social Policies.

This classification schemes was selected, after consideration of a number of alternatives, as the one most useful to the policy-maker, because it is issue-oriented and of a broad scope.

To obtain information about completed research, the study was divided into two phases. Data were first collected from libraries, data-gathering institutions, organizations and agencies; subsequently the staff (and graduate students) at Kenyatta University College, the University of Nairobi, Kenya Institute of Education, the Central Bureau of Statistics, the teacher training colleges, and within the Ministry were interviewed.

It is possible that research undertaken by foreign researchers who did not affiliate with a research institution still remains unknown, even after this intensive search.

Educational Research undertaken in Kenya between 1963 and 1980 concentrated on teaching, political education and social policies and student evaluation - the three areas which account for two-thirds of the total research studies. The following listing summarizes the types of studies which formed the majority of the work done under each of the seven major research areas:

Administration and Educational Development		10.7%
Planning and Educational Development	60%	
Access to Education		7.2%
Educational opportunities, selection and admission	41%	
Educational demand	23%	
Family-school relationship	20%	
Education and Economic Development		7.2%
Manpower development and needs	30%	
Employment and productivity	27%	
Employment and migration	21%	

Student Evaluation	19.0%
Achievement, learning and performance	39%
Cognitive development, aptitude, intelligence and perception	27%
Teaching	24.1%
Pedagogy	39%
Pre-service and in-service teacher education	25%
Teacher attitudes	17%
Communication	6.6%
Language	47%
Curriculum	22%
Political Education and Social Policy	23.0%
Social integration	30%
Indigenous philosophy	23%

Kenyan researchers have tended to concentrate on access, student evaluation and communications; expatriates have worked more intensively on areas such as education and economic development, teaching, and political education and social policies. Slightly less than half of the research undertaken during this period was done for a degree. Research has been funded primarily by the University, foreign donors and foundations.

Given this picture of past research, what can we say about the future? There seems to be need for more research in communication, access, education and economic development, and administration and educational development. Within these broad areas, specific topics requiring attention include:

- . Capital outlay, budgeting and financial policy and personal management;
- . Women's education, especially at the higher levels;
- . Cost of education to the parents (high cost schools, private schools and narambee schools);

- . Coverage of the basic education system and of literacy programmes;
- . Tests, test construction, guidance and counselling, and student behaviour;
- . Methods to use in teaching;
- . Libraries;
- . Extension, education, mass media and correspondence tuition.

THE SEMINAR PROCEEDINGS  
RESEARCH ISSUE I. GUIDANCE AND COUNSELLING,  
COGNITIVE DEVELOPMENT AND EXAMINATIONS

Guidance and Counselling Mr. G. Kilonzo, Department of Educational Psychology, KIC

The purpose of Kenya's programme of guidance and counselling is to help all learners grow in self-understanding, develop their capabilities for making realistic career decisions, overcome any personality deficits and make optimal academic progress. The need for guidance services is shown by the increase in school leavers' unemployment and the disparity between their aspirations, available opportunities and national needs.

The Guidance and Counselling Unit of the Ministry of Education, established in 1971, took over the preparation and publication of a careers booklet for secondary school students. This booklet, first issued by the Kenyanization of Personnel Bureau in 1970 and updated in 1971, has been revised periodically by the Guidance and Counselling Unit, first in 1973 and then in 1977. The work of the Unit is constrained by lack of transport, a shortage of personnel and the difficulty of securing career information, especially from the private sector. A possible source of this information may be the recently established Guidance Unit in the Ministry of Labour which is to collect occupational information, work with the schools, give talks to students and compile a dictionary of occupations.

Although research has shown that schools feel the need for guidance and counselling and that, in the older and larger schools, these

programmes are fairly well established, guidance and counselling generally suffers from the following constraints. Only secondary students, and only Form IV students within the secondary schools, are provided with information about opportunities for further education, training and employment. Counselling is rarely given; since the teacher counsellors are untrained and feel incompetent to deal with psychological and social problems, they concentrate on career guidance. Facilities are inadequate; some schools, especially the newly established ones, lack extra rooms where students and counsellors can speak privately. The time available for guidance and counselling is limited; the appointed teacher has a full schedule of classes. Often, there is lack of parental involvement and support. Even the University of Nairobi and KUC have neither organized guidance and counselling programmes nor specialized staff.

The needs which have been identified to improve the provision of guidance and counselling within the schools include: the expansion of service to the lower forms and to the primary level; additional transport and staff for the Guidance and Counselling Unit, such as officers at the provincial and district levels; in-service training and literature on guidance for the teacher counsellors; more intensive training in the techniques of guidance and counselling for B.Ed. students; and the establishment of a centre at KUC which could provide information to schools and support efforts to train counsellors through practical experience.

Cognitive Development Dr. D. Kiminyo, Department of Educational Psychology, KUC

Research on the child and the way he learns is the basis for curriculum development. Until we know how a child learns and how he

learns best, we cannot hope to have a child-centred curriculum. Western writers on cognitive development have asserted that African children cannot deal with abstractions, can only think concretely and have difficulty with three-dimensional perception. The paper presents two studies undertaken by the author on the development of the concept of conservation (the ability to recognize that alterations in form and shape do not change mass or weight), a precondition for all rational activities, among Kenyan children.

The original study, carried out in Machakos, with 120 children between 7 and 12, showed no significant difference in the development of this concept between boys and girls, children in school and those not attending, or between rural and urban children. It did show, however, a progressive increase in the development of the concept of conservation by age. The second study was carried out in different settings with other ethnic groups: Mombasa (rural), Moma Bay (urban) and Kisii (peri-urban). Again, no significant differences were found, except by age, indicating that the concept of conservation develops according to the same sequence among African and Western children.

Although they were not statistically significant, differences did exist between the groups which were studied. The kinds of activities performed by children and by adults in the presence of children may help to explain the faster development of some groups than others. It is disturbing that schooling does not seem to accelerate children's development of this concept. This suggests that teachers are insufficiently aware of the thought processes they should be developing through children's activities. It also suggests that activities in school are insufficiently related to everyday life. In fact, children live an entirely different life in schools from in their

homes. The facts learned in schools are remembered to pass a test. The learning which takes place through vital activities in the home and the community is likely to be taken more seriously and to affect children's cognitive development. Until curriculum materials are based on a realistic appraisal of children's learning and activities, they will not have a significant impact on children's cognitive development.

Examinations Mr. H.C.A. Somerset, Examinations Research and Development Unit, Ministry of Education (now Kenya National Examinations Council)

The need for examinations arises from the development goal of universal primary education and the development constraint that this open-access cycle cannot continue beyond the primary level at the present time. Therefore, some form of assessment - either internal or external - is needed to determine who will enter secondary school. Although internal assessment seems an attractive option, and, indeed is preferred at the University level, the experience from other countries, such as Tanzania, suggests that at primary, it is difficult to equalize internal grading from school to school. To date, in Kenya, the CPF, an external examination, has been the sole basis for secondary school selection.

The twin goals of the Examinations Research and Development Unit have been improved performance and improved examinations. Instead of considering CPF simply a selection tool, the Examinations Unit considers it also a tool to improve the quality of education. Performance data are used to find out where the teachers are doing their jobs well and where they are doing them less well, and this information is fed back to the schools. However, if examinations are to be used to improve the quality of teachers' instruction, attention also must

be paid to the quality of the examination itself. This has been the second main direction of research at the Unit.

Until 1975, the only results issued for the CPE examination were at the individual level: the grades for each pupil in each subject, together with secondary school selection lists. It thus was not possible to find out anything about overall trends in CPE performance. Nothing was known, for example, about the relative performance of different districts or of different schools within each district. And no information was available as to which topics and questions were of special difficulty for the candidates. Thus, the examination could not be used to monitor the performance of the primary schools, nor to indicate to the teachers which topics needed more attention in the classroom.

Since 1975, the Examinations Unit gradually has introduced additional analysis. At present, there are two flows of information back to the schools. First, the analysis of overall CPE performance in each subject by school and district makes it possible to compare the relative performance of different districts or of different schools within each district. Each year, the DEOs receive a copy of the mean scores for all districts and for all schools within their districts. Through the DEOs, the individual schools receive a list of the grades for each candidate from the school plus a copy of the school mean score list for the district. The two mean scores lists act as an incentive to improve CPE performance: each school can compare its standing with that of the other schools in the district, and each district its standing with that of other districts in the Republic. Performance of boys and girls and of rural and urban schools also has been analyzed. So far, this information has not been

communicated to the schools or the staff, but has been used mainly for research reports.

Information about how to improve also is issued to the schools annually through the CPE Newsletter. The Newsletter discusses the topics and questions which have been particularly troublesome for candidates as shown by the item difficulty profiles which are calculated for each district, for urban and rural schools, for the two sexes and for Kenya as a whole. Copies of the newsletter also are sent to provincial and district officers, primary teachers' college tutors and secondary schools.

However, it is not sufficient to improve performance if the examination is not of high quality. The three basic criteria for a good examination are efficiency (the ability to distinguish between the able and less able), equity (the lack of bias toward any geographic or socio-economic group) and relevance (the testing of skills which will be used by terminal pupils as well as those who will go on to secondary school). Item analysis has been used to increase the efficiency of the CPE and also to strike a better balance in the questions. One of the major changes in the CPE has been the movement away from recall items and those which emphasize knowledge of technical terms to those which test the candidates' ability to read data, interpret and reason from it. The CPE now has more questions testing knowledge which is especially relevant to the needs of the terminal student, as shown by the inclusion this year of questions on a balanced diet, soil erosion, houseflies and human health, the sources of good drinking water and sickness in farm animals.

#### Research needs identified during discussion of Research Issue I

Education and employment, including the relationship between various

developmental strategies and employment opportunities, with an emphasis on the employment of graduates.

Continuous and updated information on job opportunities.

The relationship between the curriculum and employment.

Students' employment aspirations and attitudes.

Guidance and counselling, including the attitudes of parents and students to the guidance and counselling services.

Educational costs, including the costs to parents.

Examinations, the effectiveness of the communication to the schools.

Concept development, the comparative effectiveness of different approaches to concept development.

THE SEMINAR PROCEEDINGS  
RESEARCH ISSUE 2. TEACHING

Teacher Education in a Changing Society Dr. H.O. Ayot, Head,  
Department of Communications and Technology, KIC

The undergraduate course at KIC leading to the B.Ed. has four major components: academic studies, educational studies, pedagogical studies and practical teaching. Multi-disciplinary, inter-disciplinary and integrated courses have become more important through the attempt to increase the relevance of the curriculum to personal, social and national needs. The major problems in shaping the B.Ed. curriculum include balancing theory and practice and academic content and pedagogy; integrating various course components; relating course components to the needs of teachers in the schools; creating teachers who can adapt to changing conditions; coping with the constraints which limitations of staff and facilities place upon practical work; making use of local secondary schools as part of training; and equipping teachers to work with groups other than the formal school system.

The Masters Degree in Primary Education prepares experienced teachers to undertake leadership roles and responsibilities, such as curriculum development, supervision, inspection, administration, pre-service and in-service training. The content of the course is grouped into five main areas: the teaching of language arts, mathematics, science and social studies, and the production and use of media and resources. Since a primary school educator is required to know all aspects of primary education, the students in this programme take both

science and social studies the first year and specialize only in the second year.

Recent trends in teacher education emphasize the importance of a total programme which integrates pre-service and in-service training in order to enable teachers to adapt to changing conditions, needs and expanding knowledge. Refresher courses, which update teachers' knowledge and introduce new methods, need not lead to a change in the teachers' status. However, there also is need to provide opportunities for teachers to acquire adequate professional qualifications and also a higher status and promotion. Although in-service training has received little attention in Kenya, such programmes could be implemented through holiday courses, correspondence courses, programmed instruction, films, teaching by radio, on-the-job training, specialized publications and further use of the TACs. Presently the KNIT runs a three-week in-service course each year for qualified teachers, and the Principal's Association has begun to organize in-service courses for teacher educators. However, an effective scheme of in-service training requires the long term allocation of funds by the Ministries of Education, detailed planning, clear objectives, projections and time schedules, the use of Kenyatta University College and teachers' colleges as venues and collaborators in planning, follow-up and evaluation.

A number of research studies could improve the training of teachers and classroom instruction, such as: construction and standardization of research tools; preparation, pilot testing and evaluation of a curriculum for achievement motivation; studies of teachers' classroom behaviour and its impact on classroom climate, pupils' attitudes and achievement in different subjects; and

studies of the effectiveness of the teaching of science and social studies in primary and secondary schools.

Teacher Attitudes (Problems and Profession), Classroom Environment and Social Relations Dr. J. M. Iyapa, Department of Educational Psychology, KUC

The problems faced by teachers include poor pay and insufficient fringe benefits, a declining self-image, insufficient assistance from the school inspectors and student unrest, strikes and boycotts. Student unrest has a number of causes, some superficial and others more fundamental. Examples of superficial causes are the instigation of frustrated and disgruntled pupils or teachers and/or inadequate school meals, buildings, books and teaching. These causes are termed superficial because they tend to be the last straw to break the camel's back.

The more deeprooted causes of student unrest tend to be ignored because they are difficult and painful to solve. One of the more fundamental causes of student unrest is the progressive abdication by parents of their responsibility to discipline children and guide their moral development. As a result, children come to school not knowing their social and moral obligations to their nation, communities and families. They lack respect for others and for property, and also the ability to postpone self-gratification. Their demands are unrealistic because they have never had to work, share or set priorities. The school becomes the focus of their unrealistic demands for self-satisfaction. Pupils from well-endowed families expect a continuation of the good things they enjoyed at home. Other pupils expect the school to provide them with the satisfactions they have been denied

previously. Unless the seeds of discipline have been sown, it will be difficult for the teacher and the school to change those pupils' behaviours.

A further cause of unrest is the absence of the father figure, the reduction in the influence of the father due to economic and ideological change. Today, the authority in the family is shared between the father and the mother, and the child becomes able to defy one authority while pleasing the other. When children go to school, they lack the ingrained habit of obedience to an authoritative figure and consider themselves able to defy rules and discipline.

An additional cause of unrest is the poor relationship between parents and teachers. The lack of mutual trust between parents and teachers causes many children to see teachers as useless. Sometimes there is justification for this attitude since many who are in the teaching profession are there without interest and commitment. Parental attitudes tend to reflect the prevailing social and political climate which currently places a low value on teachers and the teaching profession.

Possible solutions to this situation include the addition of moral training and family education at both schools and teacher training colleges; the creation of a department of Family Education in the Ministry of Education; encouragement of greater teacher-pupil-parent interaction; more frequent and regular inspection, with an emphasis on on-the-job training of the teacher by the inspectors; greater stability of teachers by elimination of unnecessary transfers; and the establishment of communication channels between the pupils and the staff through school councils, house committees, entertainment committees and sports committees.

Research needs identified during discussion of Research Issue 2

Teacher effectiveness, including the effects of over-enrolments, over-crowding and streaming.

Studies of teachers' classroom behaviour and its impact on classroom climate, pupils' attitudes and learning.

The number and effectiveness of untrained teachers.

The leadership qualities of teachers.

Teacher supervision, as it exists and the comparative advantages and disadvantages of alternative methods of supervision.

Teacher training, including the comparative effectiveness of various training methods.

The optimum length of the teacher training programme.

The quality of the KUC graduate.

The selection of B. Ed. students.

Students

The causes of youth unrest.

The effect of society on the morals of the child.

Employment aspirations and attitudes.

THE SEMINAR PROCEEDINGS  
RESEARCH ISSUE 3. COMMUNICATIONS

The Role of Evaluation in Curriculum Development Mr. H.J. Kenina,  
Director, Kenya Institute of Education

Curriculum development is the process of introducing innovation and change to the schools. The curriculum can be described as the totality of all experiences in a learning situation; however, the attention of the curriculum developer generally is confined to the activities which take place in formal educational institutions. In Kenya, educational administrators and professional educators are looked upon by the society as leaders in the field of curriculum development, and the society gives them a lot of leeway in formulating what should be taught. The usual sequence of events leading to the adoption of a new curriculum includes the following stages: policy decisions and guidelines, curriculum design, discussion of the design with appropriate bodies, approval of the design by expert organizations and panels, drafting of new materials, approval of the materials, orientation and in-serving of key personnel, piloting of the new materials, review of the design and materials, and large-scale implementation.

Evaluation is the process of measuring the effectiveness of a programme against its goals. Therefore, evaluation often plays a part in the decision to introduce change, or to develop a new curriculum. Evaluation also should contribute to the process of formulating this new curriculum. The question, when should the evaluation of a new curriculum be undertaken, is answered differently

by different groups of curriculum developers. Some feel that any meaningful assessment of the effectiveness of a new curriculum must await the piloting or testing of the new materials in the classroom. Others feel that evaluation should commence at an earlier stage and that it is possible to find criteria for evaluating the very first drafts of materials against the stated goals and objectives of instruction.

Another issue concerning evaluation is whether it should be conducted by the specialist who has designed the programme or by an outside evaluator, i.e. a researcher. The introduction of an outside evaluator introduces the need for effective communication between the evaluator and the curriculum development specialists, both to secure agreement on the criteria, or models, which will be used in the assessment and to reduce the suspicion and resentment which are natural reactions to the process of being "inspected" or "examined" by one who is viewed as an outsider. It is only when this process of communication and joint consultation is effective that the curriculum specialist and the researcher will consider their roles as complementary and that the process of curriculum development will benefit from their combined expertise.

Extension Education, Mass Media and Correspondence Tuition With  
Special Reference to Audio-Visual Communication and Libraries  
Mr. P.F. Kinyanjui, Director, Institute of Adult Studies,  
University of Nairobi

The one common denominator for extension education, mass media, correspondence tuition, audio-visual communication and libraries is that they are means of reaching adult learners who are separated from the teacher by space or by time. The ability to free ourselves from the conception that education necessarily involves a

teacher, a classroom and a blackboard (which, to date, has managed to educate less than half of our population) may help to solve some of the educational problems which Kenya shares with the rest of the world.

Distance teaching provides an opportunity to serve the expanding numbers who must be reached and cannot be accommodated by the formal educational system. In Kenya, the resources of money or manpower simply will not be available to allow for much greater expansion and improvement in educational provision. New ways and methods will have to be found to keep expenditure on education in proportion to other development priorities. Distance education is a way of reaching more people at a lower cost, and of making the fullest use of existing resources. It is also a way of implementing a long-range, total educational strategy for all citizens from birth until death, wherein the stereotyped labels of "formal" and "non-formal" will be replaced by the concept of a continuum of educational activities available whenever people need new knowledge, attitudes or life-coning skills.

Distance teaching is an educational process in which a significant proportion of the teaching is conducted by someone removed in space and/or time from the learner. It usually involves a combination of media with some face-to-face study, instruction, or contact. Its advantages include: reduced costs and increased cost-effectiveness (through the economies of scale, use of existing resources, minimal outlay on buildings and equipment, efficient use of the time of the teacher and the learner); flexibility and the ability to respond quickly to the needs of different areas and different clientele at different periods of time; and contribution to educational

innovation and reform. Its disadvantages consist of greater difficulty for the teacher and the learner. Distance teaching requires more initial planning and effort on the part of the teachers and administrators; it also demands greater self-discipline from the learner who lacks the immediate encouragement and help of a tutor and the structure of a formal learning situation as well as all our requisite facilities. These disadvantages can be minimized through the combination of different distance teaching media and the provision of personal contact between students and tutors at regular intervals.

Research has indicated that distance teaching can be effective - the important conditions being sufficient motivation, the provision of systematic and structured units of instruction; encouragement and involvement of the learner; an efficient system of feedback between the teacher and the learner or between learners themselves; and proper selection and training of the group leader or tutor. It has been used successfully for in-service training of teachers and offers potential for the in-service training of extension workers in all fields. It also has been used as a support to school instruction, either for enrichment or direct teaching, for instruction of people outside school or college in subjects to be found in the formal curriculum, and also in non-formal educational settings. In Kenya, the Correspondence Course Unit of the Institute of Adult Studies began offering courses at lower secondary levels and has progressively moved to higher levels as well as to vocationally-oriented courses.

Effective distance teaching depends upon the imaginative utilization and combination of existing learning resources. For distance

teaching to operate effectively, certain infrastructures are necessary. It requires the coordinated and cooperative use of the postal system, the broadcasting services, extra-mural officers and sub-centres throughout the country. The availability of staff as part-time tutors, libraries, materials and reproduction facilities, audio-visual equipment and aids, tapes and cassettes.

The wide range of its uses in different geographical, economic and political settings suggests that distance teaching has positive implications for educational development. It has direct implications for continuing or recurrent education where it offers excellent opportunities for educational entrances and exists, for dropping in and dropping off, depending on the circumstances of the individual. It is a means of taking education to more people at the places where they live and work. It also can help solve some of the training and re-training problems for teachers, extension workers, community leaders, administrators, farmers, traders and many others, as well as the youth who will be the adults of tomorrow.

Research needs identified during discussion of Research Issue 3

Evaluation of the KIE Media Service and the Correspondence Courses, IAS, including questions such as:

Listenership,

Effectiveness,

Understanding and interpretation of the content,

Costs.

Curriculum Development, studies to identify when there is need for curriculum change.

THE SEMINAR PROCEEDINGS  
RESEARCH ISSUE 4. ACCESS TO EDUCATION

Education and Inequality in Kenya: Some Research Experience and Issues Dr. Kabiru Kinyanjui, Institute for Development Studies, University of Nairobi

Kenya has chosen a capitalist path to development, but it subscribes in its policy statements to some elements of equality in the economic, political and educational spheres. The most explicit expression of commitment to equality in the provision of education was made in 1976, in the report of the National Committee on Educational Objectives and Policies which recommended inter-alia the removal of social and regional inequalities. Given the policy statements regarding the provision of equality of educational opportunity between regions and among social groups, a number of research questions and tasks arise. The approach to the analysis of the equality of educational opportunity, illustrated in this paper by a case study of Nairobi, consists of three elements.

First, an analysis of equality must begin with an analysis of the concrete reality in which the provision of education is carried out, rather than with the assumption that reality reflects policy. Second, an analysis of this type calls for research into the economic, political and social reality of the country and the elucidation of how this reality relates to and interacts with the provision of education between regions, among the sexes and for social classes. Underlying this kind of analysis is the assumption that the educational system is to a large extent a product, although at times

exhibiting some elements of independence, of the political and economic structure of the society in which it is situated. Thus, changes in the economic, social and political sectors will affect the way inequality in education is perceived, defined, measured and dealt with. In other words, if as educators and researchers, we want to change the educational system, we must be able to understand the forces acting on this system.

The third distinctive element in the illustrated approach to the analysis of educational provision is the units used in the research. School type, rather than province or district, has been taken as the analytical unit appropriate for a close examination of what is happening within a particular area. Analyses which are based on provinces tend to obscure the considerable differences between the districts within the provinces; even district-level analyses hide the differences within each district at the various sub-district levels.

The choice of Nairobi for this study is not meant to minimize the problems of rural Kenya but rather to emphasize the complex nature of educational inequality in the relatively more advanced areas of the country. In simplest terms, the case of Nairobi shows that our children are starting from unequal homes, attending unequal schools and ending up unequal. Social class differentiation based on wealth the ability to pay for high-cost pre-school and high-quality primary education - has replaced race as the factor which accounts for educational opportunity. Second in importance to wealth is competence in English, which is tied closely to the income and educational background of parents. Despite the expectation that education will be an equalizing force within our society, the system of education in Nairobi today, as in the past, reflects and reinforces the

existing social differentiations. We can improve the efficiency of the CPE or the quality of the teaching, but the basic inequalities will remain because they are within the structure of the society.

During the colonial period, the dominant ideology emphasized racial differences. Inequality in the society and the educational systems was between the main racial groups. Therefore, equality was conceived as equality between the races; the African nationalists struggled for equal treatment in education and elsewhere regardless of racial background. In the 1950s, education began to change as a reflection of the changes in the political and economic sphere. The Liberal Party, the United Kenya Club and Hospital Hill School (established in 1954) all reflected and abetted the forces tending to promote African integration into the civil service, the business world and the political sphere.

Although measures to integrate Africans into European and Asian schools were the preoccupation of the 60's, by the 1970's, the issue of regional and class inequalities had assumed greater importance. A look at the parliamentary debates between 1968 and 1972 shows that regional inequality was a major concern. The urban areas were, however, assumed to be islands of better educational opportunities. From the national perspective, regional inequality still remains an important issue. But when the education within one district or urban centre is analysed, the contours of class inequality become visible.

Today in Nairobi, what is important in explaining the differences between school categories is the impact of the family background of the children, pre-school education obtained, training in English, and type of teaching and exposures in the primary school.

All of these add up to the differences in CPE performance and hence to access to secondary schooling. Family background inevitably prepares the child for the type of pre-school education, which, in turn, prepares him for entry into a particular primary school which will tend to determine his CPE performance and hence his entry into secondary school. A schools are catering for the working class and urban poor; they have less educated teachers, and their students who perform relatively poorly in CPE, have a low rate of admission into secondary schools. In contrast, pupils attending C schools come from high income families, attend well-staffed primary schools and perform well in CPE, with a high rate of flow into secondary, and into high-cost secondary schools.

A number of research problems and needs should be highlighted. First, there is need to establish the relationship between the socio-economic background of pupils and performance at the primary school level. The data are not presently available, and in this study the relationship was assumed to be similar to that found in other countries. Second, there is need to identify the critical school variables influencing school achievement, a study with enormous social policy implications. Third, there is need for more research regarding language. We need to know the specific contribution which English, and going through a pre-school which omphasizes English, makes to performance in primary school and in the CPE. There also is need for more investigation into the structure of knowlddge and how it is transmitted. We assume that we have a common curriculum and the same texts, but this assumption needs to be tested to find out if the students are receiving the same kind of knowledge, or if there are systematic variations in transmission.

On the whole, the theoretical aspects of educational research are underdeveloped in Kenya. Hence, more attention needs to be given to theoretical work. As regards research on education and equality, researchers need to fit their findings within the broader framework of inequality and the reproduction of class differentiation.

Women's Access to Education in Kenya Mrs. A. Krystall, Bureau of Educational Research, KUC

One of the contributions of research to equity-oriented policy is the "unpacking" of aggregates and averages to examine and explain how particular sub-populations are affected by existing provisions. This paper looks at one sub-set of the school population - Kenya's young women. In it, we will be concerned with the effect of two government policies on female enrolments: the progressive abolition of school fees since 1974, especially the 1978 abolition of the building fund, and the decision to halt the expansion of maintained secondary schools. We also will have a chance to consider the effect of economic development on women's access to education.

Since Independence, the proportion of girls enrolled in primary school has risen steadily in all parts of Kenya. In contrast to 1963, when girls composed only one-third of the primary school-goers (34 percent), in 1970, their representation among primary schoolchildren more nearly approached that of boys (47 percent). At the provincial level, female enrolments varied from a high of absolute parity with males in Central Province (50 per cent) to a low of slightly over one-quarter of the primary school pupils in Northeastern Province (27 percent). At the District level, 14 districts (from all provinces except Northeastern) can be categorized as "high opportunity" districts, with girls forming 40-50 per cent

of the primary school enrolment. At the other extreme are the 15 "low opportunity" districts (from 5 provinces) where girls compose less than 45 per cent of the primary school totals.

The access of females to education is generally a reflection of economic development. The "high opportunity" districts (half of which had a high proportion of girls in primary school even in 1973, the year before any reduction in schooling costs) are economically better off than the average for Kenya as a whole and/or contain their province's major urban centre. Economic development enables parents to meet the direct costs of both their sons' and daughters' schooling and the indirect costs of foregoing their daughters' household and agricultural assistance. It creates visible employment opportunities and, hence, the expectations of economic benefits from the daughter herself (as well as from the educated son-in-law) as returns for educational investment. The "low opportunity" districts are one and the same those with the lowest overall enrolment of the school-aged population and those with the greatest disparity between female and male enrolment levels. The downward spiral of low economic and educational development in these districts is reinforced by strong cultural and religious traditions which mitigate against female schooling.

The 1979 enrolments in Standard 1, the first to follow the abolition of both school fees and building funds, can be used to ascertain the impact on girls' educational opportunities of a sizeable reduction in the direct costs of education. However, these figures must be interpreted with caution, since they may be swollen with a backlog of previously enrolled over-age pupils. To the extent that the 1979 enrolments in Standard 1 reflect a stable trend, they suggest that "free" education will bring girls into the educational system

in equal or nearly equal proportions to boys. In 25 districts, girls entered Standard 1 in proportions of between 49-51 per cent. The disturbing element in this picture is the fact that in 13 of the 15 "low opportunity" districts, the representation of girls remained unchanged or even declined. Thus, the increased chances of schooling for the majority of girls has created a pocket of those who are doubly disadvantaged - vis a vis the boys in their own areas and the girls in the more favoured parts of the nation.

At the secondary level, the proportion of female form I entrants also has risen, from one-third (32 percent) at Independence to 43 per cent in 1979. However, the effect of the Government's policy to limit the expansion of maintained secondary schools has been to force an increasing share into the unaided sector. In 1979, 42 per cent of the male entrants and only 27 per cent of the female entrants to secondary schools were accommodated in maintained schools. This seriously disadvantages girls in terms of cost, received quality of education and attainment. The inferior quality of the harambee institutions which are disproportionately attended by girls constrains their access to tertiary level education. The relative lack of science facilities in girls' secondary schools further minimizes their opportunities for continued education, in view of the present emphasis on science and mathematics for entrance to post-secondary training and the University. The arguments that parents undervalue further education for their daughters do not seem applicable at least for the many parents who are willing to invest in the comparatively high costs of harambee schooling. The blockage in the access conduit to tertiary education and thence to the higher levels of formal sector employment seems in large measure due to inequalities in provision rather than the lack of interest among female students and their families.

THE SEMINAR PROCEEDINGS  
RESEARCH ISSUE 5. ADMINISTRATION AND EDUCATIONAL DEVELOPMENT

Focus on Administration and Development Mr. Archie Mbogho, Permanent Secretary, Ministry of Basic Education

A number of planning, administrative and management problems raise issues which require the attention of the researcher. Those problems can be viewed as outgrowths of the rapid expansion of the educational system and the less rapid growth in salaried employment opportunities.

The problem area which demands a great deal of research is that of financing and budgeting, and especially ways to improve efficiency. Our efforts must now be directed towards ensuring that the flow of students through the system is accomplished with a minimum of waste, because wastage which results from dropouts and repeaters has a retrogressive effect on the equity of the educational system and imposes an extra financial burden upon the system.

A closely related problem is how to maintain quality in the face of quantitative expansion. This requires relevant research on the learning process with a view to reducing costs by eliminating wastage through trial-and error curriculum developments and changes.

For educational development to be fully supportive of the policies and objectives of Kenya's Development Plans, the administrative need the analyses of the researchers as to the relationships between education and income, productivity, nutrition and other development goals. A special issue of concern because of its emphasis in the present development plan is the extent to which

education is promoting development in the pastoral areas. Researchers' attention also is needed regarding the problem of adapting the educational curriculum so that school leavers have appropriate attitudes, knowledge and skills to carry out the tasks required for national development.

Turning to the administration of education, there are a number of problems which arise from the segmentation and fragmentation of managerial functions in the various Education Acts, legal notices, orders and statutes which have been passed by Parliament. For example, the TSC employs teachers and assigns them to schools. But the Commission has no control over, or part to pay in, the performance of these teachers. The TSC relies on the Ministries for an assessment of the work of these teachers. The Minister is the agent of the TSC in the Provinces and Districts. The Minister, not the TSC, promotes the teachers; but the teachers are not the employees of the Minister and therefore he cannot discipline them other than by recommending disciplinary action to the employer.

The management of primary education is perhaps the best example of the segmentation and fragmentation of managerial functions which makes achievement difficult and which seems to require the clarification and recommendation of the educational researcher. The District Education Boards are responsible for running primary education in the rural areas. The Municipal Councils, through their education committees, do the same in the municipalities. However, these authorities have no direct say over the discipline of teachers. And the District Education Boards have no direct responsibility over school buildings, provision of land (except in advisory capacity and in connection with district development programmes) or the syllabuses and examinations, which are centralized in Nairobi.

Another problem area, hence topic for investigation, is the quality of educational managers, especially of the school heads. It is necessary to critically examine the structure of the administrative machinery with a view to introducing innovative measures in recruitment, training and retraining of educational administrators.

Similarly, a number of problems relate to the operation of the administrative bureaucracy. We need to examine and understand how to improve the basic logistical tasks of payrolls, insist on prompt and thorough preparation and disbursement of funds and on vigorous accounting to avoid overexpenditure and sometimes underexpenditure.

Specific recommendations for research priorities include:

- . The definition of basic education - when it should begin and where it should end in Kenya;
- . The improvement of access and efficiency of the basic education system;
- . The preparation of curriculum and other related teaching materials for the basic education system;
- . The preparation of teachers and other personnel for the basic education system;
- . The roles to be played and the responsibilities to be carried out by the Ministry of Basic Education, local authorities and school committees;
- . The implications of making universal primary education free and compulsory;
- . The definition and management of the pre-primary system;
- . The number of children with different handicaps and their needs.

THE SEMINAR PROCEEDINGS  
RESEARCH ISSUE 6. EDUCATION AND ECONOMIC DEVELOPMENT

The Impact of Government Policies on Primary School Repetition and Dropout Rates in Kenya, 1970-78 Dr. J.A. Nkinyanzi, Institute for Development Studies, University of Nairobi

An analysis of national school data for 1970-78 has shown that the magnitude of repetition and dropout rates is much higher than often thought. In lower primary where the dropout problem predominates, the rates range between 10 and 40 per cent per annum. Repetition rates in upper primary, where this problem is located, are between 15 and 30 per cent in nearly half of the rural and urban districts. The incidence of both dropout and repetition falls squarely along the lines of past and present-day disparities in educational and socio-economic development. A further analysis of field data, collected in 1978-79, has shown that objective barriers, i.e. the costs of primary schooling, rather than lowered aspirations for schooling, account for much of this premature school withdrawal.

The abolition of school fees, in 1974, did not improve access or retention in the primary schools of Kenya since the side-effects were to make schooling even more expensive, as rural communities struggled to raise funds to put up facilities to cater for their swollen enrolments. The 1974 abolition of school fees and the 1978 abolition of building funds both applied only to the low-cost primary schools, those catering for the lower classes and the majority of Kenyan children, and not to the coveted highcost schools catering for the more privileged. In addition, the present

policy of using community self-help to finance schools with the regions which have concentrations of moved classes against those which do not. In the end, it can be expected that existing disparities between classes and regions will be exacerbated. It also is plausible to assume that communities which have problems in raising funds for their schools may reintroduce informal costs, as for example, demands that each child's parents contribute a certain amount to each school project.

In addition, compensatory policies enacted to assist the children from the pastoral areas have not succeeded in improving access and retention, since the fees charged in the boarding schools established in these areas and other incidental costs have closed these installations to the majority of the children who are indigenous to these areas. Moreover, the discovery by the rest of the country that they could exploit these institutions to further their children's chances in secondary school selection has undermined the government's compensatory policies in a most direct way and, in effect, has contributed to the continued exploitation of pastoralists and other people from the marginal areas of Kenya.

Of particular concern about the prospects of improving the social condition of underprivileged communities in the future is the general picture which emerges of ad hoc and trial and error planning. Disenchantment with the success of the initial boarding school programme stimulated proposals for their abolishment and the substitution of mobile schools and itinerant teachers. Then, despite demonstrated inadequacies, faith was placed again in boarding institutions, and to this end, the World Bank is investing some 60 million Kshs. to finance 12 additional centres in the arid areas.

It is apparent that the weight of available evidence casts a verdict of failure for existing policies and that there is a need for more coherent government thinking on matters pertaining to primary school repetition and dropouts. Repetition takes place at the upper primary level and will continue to do so as long as competitive terminal examinations continue to be used as selection mechanisms. Given the prevailing educational and social circumstances, it is possible that repetition should be accepted as a matter of fact, instead of pretending that it does not exist and allowing it to lead to the movement of pupils and accompanying adverse displacement effects. Similarly, there is need for a candid acceptance of the fact that substantial numbers of pupils continue to leave school prematurely, and the key explanation for this is the burden of educational costs.

In regard to boarding installations, there is absolutely no justification - either in terms of social need or geographical dispersion of schools - for the existence of "middle" and "high" cost primary boarding schools in Kenya. It is recommended that these elitist boarding schools be closed and that the funds which are saved be used to improve the conditions in and the availability of the so-called "low" cost primary boarding schools which are intended to raise enrolments and improve school retention in the remote areas of the country. Public boarding schools should be for the children who need them the most, i.e. pastoral children. It is therefore also recommended that the government initiate action to ensure that school and boarding places meant for these children are not pre-empted by relatively more privileged children from other parts of the country.

THE SEMINAR PROCEEDINGS  
RESEARCH ISSUE NUMBER 7. POLITICAL EDUCATION AND SOCIAL POLICIES

Political Education and Social Policy in Kenya Dr. S.N. Bogonko,  
Department of Educational Foundations, KIC

Political education is the transmission of a society's political culture from one generation to another in order to preserve and enhance its political norms and institutions. Political education promotes desired behavioural patterns and attitudes, as well as beliefs about public order, and deals with the rights, roles and responsibilities of the citizens in the society as well as the economic, social and political prospects and problems which promote or hinder national development. It is basic to producing citizens and to promoting development, since the ends of development are social ends. In this way, political education enlightens citizens about the totality of their nation's affairs.

Political education is particularly important in the newly independent nations of Africa which need to "quickly train or socialize the young and old alike so that they become more intelligently loyal to the new nation, identify with it, participate in its development and thus assure its survival" (Ripala). Political education is part of the process of turning people away from the values of the colonizers and from narrow ethnic loyalties and of promoting a common culture and ideology.

Despite the importance of political education in any society and its special importance in Africa, Kenya offers no serious political education in its schools. The facts about the operation of the

government do not help pupils understand the social, economic and political nature of the Republic, nor familiarize them with the realities of their country, nor explain the reasons for the nation's policies. Postponing political education implies that during their school years, the youth are not part and parcel of society. Further, it denies those who are expected to be the future leaders the rudiments of the mechanics of leadership and of the socio-economic situation of their country.

No political education would be realistic without an ideology to guide it. More again Kenya fails badly. African socialism, which is expounded in Sessional Paper No. 10, of 1965, has never been put into practice. This lack of an ideological framework, perhaps, explains why Kenya has not taken a definite stand on African culture. The absence of an ideology and culture seems to support Kenya's indifference to political socialization.

To remedy this situation, it is recommended first of all that the schools' curricula be decolonized and given an African shape and content. The resulting education should aim at interpreting the pupils into the lives of their families, their villages and their country. The youth should be prepared for the exercise of all the powers and responsibilities of citizens, and political education should become a compulsory subject in the schools.

The core of this instruction could be placed in civics-cum-history. Civics should show pupils why Kenya is governed as it is. A practical component should be provided to pupils in the higher classes, through visits to councils and observations of nominations, voting, the work of government officials and that of other public figures. Current events should be included and should train pupils to read newspapers,

to help them keep abreast of events and to show the connection between the school, the home and the world. Economics, especially the causes and the attempted solutions to economic problems, has a place in political education at all levels. In addition, older students need to be introduced to the political economy of Africa to understand the causes and problems of underdevelopment and of neo-colonialism.

Further, political education should permeate the curriculum. All subjects can help to train citizenship and patriotism, especially literature and geography. Finally, there is need to establish a KANU Youth League in all secondary schools and institutions of higher learning.

However, effective political education requires that Kenya chart out the culture and the ideology which must form its backbone. Rather than viewing ideology as an ugly monster, Kenyans ought to recognize ideology as a tool for introducing a system with definite and specific goals towards which the energies and actions of all nationals are directed, a system which translates society's values and beliefs into action.

Political education is necessary to instill the values to make the youth true citizens of their nation, the knowledge of civic responsibilities and rights, and the spirit of national love and solidarity. It also is hoped that political education will make these future citizens sufficiently radical to advocate state action in promoting equality of opportunity in the nation.

Political, Moral and Religious Education Dr. R.J. Njoroge, Chairman,  
Department of Educational Foundations, KIC

This paper seeks to promote a more adequate conceptualization and understanding of the trinity of political, moral and religious education. In the first section, which deals with political education, an attempt is made to draw attention to our failure to relate the organization of education to its objectives. Using as an illustrative example the objective of national unity, it is possible to recognize our failure to structure education, i.e. create learning situations or environments, which assist learners to internalize the concept of unity. In fact, the variables which would effect this type of socialization have not been identified with sufficient clarity to lead to effective action. However, we can use the knowledge which is available from the physical and social sciences to point to conditions which educate for, not merely pay lip-service to, national unity.

To take but two of the many possible conditions, we know that the underprivileged in the area of nutrition may not feel united with the privileged. Therefore, it is necessary to rectify in this area - to create learning environments where the basic physiological needs of all Kenyan children are catered for - to further the goal of unity. In addition, since we know that children who play, eat, rejoice and suffer together tend to develop friendships which cut across ethnic and racial lines, we can question whether the current structure of education which separates children according to the social classes of their parents lays a firm foundation for unity. This state of affairs is aggravated by the paucity of national schools, which, in the colonial period, tended to create learning situations in which

lasting relationships were established among the members of different ethnic groups.

However, since education is only a sub-system of the wider society, these reforms, and others which analysis shows to be necessary, also require the reform, through political action, of the entire socio-economic base which is at the heart of the inequalities that bedevil education. It then is evident that the achievement of the important educational objective of national unity depends in large measure upon achieving social justice, particularly through a reduction in social inequality.

Political education is a species of moral education. A person can, without indulging in any logical contradiction, provide moral education without necessarily providing political education. Recently, a controversy as to whether it also is possible to provide moral education without connecting it to religious education has been sparked off by the Gachathi Report. The predominant viewpoint in the report is that educators have the task of formulating a system of moral education which integrates religious persons, atheists and agnostics in the common quest for a higher quality of life, irrespective of their religious or ideological differences. The report assumes that there is a core of ethical values which can enjoy wide acceptance and thus provide a measure of cohesion for our society, and that these values can be made part of the moral education of our learners.

Although the report does not undervalue the role of religion in moral training, it is quite clear in its contention that religion and ethics are two distinct realms which can be taught separately. This position is opposed by a number of theologians who contend

that without a foundation in God and in worship, the moral sense will degenerate into relativism, scepticism and nihilism.

However, the position of the Gachathi Report is buttressed by many moral philosophers who argue that men are capable of living moral lives without a belief in God or any other nonhuman entity. They posit an autonomous ethics whose moral authority is the self. Their points seem supported by the work of the psychologist Lawrence Kohlberg who has charted the stages of moral development in a manner similar to Piaget's stages of cognitive development. Thinkers of Kohlberg's mode of thought view the development of morality as a natural progression through a series of stages which culminate in stages when morality is autonomous. This does not mean that everybody reaches all the stages or that the contents (moral principles) are the same for all. What is invariant is the form (reasoning) of each stage, although the contents reflect different cultural backgrounds. At the stage of autonomy, there is the possibility of rejecting religion; however, religion does not have to be rejected. What is vital at this stage is that persons seek autonomous foundations for their morality; in this quest, some may reject certain aspects of tradition, and others may make personal judgments to accept the religious foundation of morality. These considerations bear testimony to the fact that the position of the Gachathi Report is amply supported by much recent work in moral philosophy and social psychology.

The report is not very informative as to the form that moral education should take in Kenya. It proposes some of the themes which could constitute the basis for moral education but does not suggest the methods to be used. It is recommended that if moral

education is to achieve the autonomous stage, the teaching of ethics must, as far as possible, follow the teleological approach which shows the student the purpose of the values he is taught, the reasons for giving allegiance to them and the consequences, in terms of benefits, of abiding by them. Deontological approaches, which tend to emphasize duty for duty's sake (the morality of do's and don't's) may inhibit the development of moral autonomy.

Research needs identified during discussion of Research Issue 7

The common understandings and attitudes of the general objectives of the educational system.

The experiences which promote and develop these understandings and attitudes.

THE SEMINAR PROCEEDINGS  
RESEARCH ISSUE NUMBER 8. SCIENCE AND MATHEMATICS EDUCATION

Science and Mathematics Education in Primary Schools in Kenya -  
Major Constraints Mr. I.J. Crondi, Director of Education,  
Ministry of Basic Education

This paper examines some of the complaints about and problems faced in the teaching of mathematics in the primary schools. Despite the excellent objectives of primary mathematics, the present curriculum, which was introduced in 1970 and often referred to as "Modern Maths", seems more suitable as a preparation for secondary schooling than as a preparation for daily life or employment. Instruction stresses the learning of terminology, topics of a theoretical rather than practical import and de-emphasizes practice.

However, an examination of present and projected enrolment figures shows the importance of a terminal orientation to mathematics teaching. In 1979, only about 70,000 of the 270,000 CPF candidates found places in either government or harambee secondary schools. In 1980, there will be 350,000 Standard 7 leavers, with no corresponding increase in Form I places. By 1985, perhaps 900,000 of the 1,000,000 children who entered Standard 1 this year will be sitting CPF, and it is extremely unlikely that secondary schools will experience a similar rate of growth. Therefore, it appears that the bulk of Kenyans will have only a primary education and that the curriculum, especially of utility subjects like science and mathematics, should be based on a serious analysis of the needs of the terminal pupil.

In addition to this most basic problem, the adoption of the Kenya Primary Mathematics was beset with a number of other problems. One had to do with the necessity of adapting a six-year course to the seven-year primary cycle. Another derived from the use of the unit approach, instead of the recommended spiral approach - a change which has had adverse effects on learning. In addition, when the new curriculum became compulsory, there was a rush to complete the materials for the schools. In consequence, there were no trials, in-built evaluations/or consultations during the writing of the course books, particularly Books 4 through 7. At the same time, during the writing of these materials, there were frequent changes in programme personnel, leading to individualized and uncoordinated efforts and approaches.

As the programme got underway, publications often were late. Courses had to be started before pupils' books and teachers' handbooks were available. Teachers were unable to complete the year's work, and pupils' attainment suffered. This situation has not improved. Teachers complain that the syllabus is overloaded and that it is still difficult to complete the year's work. The supply situation is little better. The books published by the Jomo Kenyatta Foundation seem constantly to be late and in short supply. Although the Kenya School Equipment Scheme has been supplying books to the best of its ability, there is a limit of between 20/- and 30/- per pupil per year for all books. The cost of the mathematics is comparatively high: between 10/- and 15/- for a pupil's copy and 20/- for a teacher's handbook, severely limiting the numbers which can be supplied to the schools. The binding has turned out to be of poor quality, and the books have been wearing out within a year, intensifying the problems of shortages and sharing.

Training teachers for the changed curriculum also has proved difficult. The organization of in-service courses has been haphazard, and a satisfactory in-servicing system has yet to be developed. Although during the initial period, lack of communication with the teacher training colleges adversely affect pre-service training for the new course, this situation has now been corrected by modifications of the teacher education mathematics syllabus.

Research needs identified during discussion of Research Issue 8

Identification of the skills and mathematical understandings required the terminal pupil.

Evaluation of NPM syllabus and materials.

Evaluation of the process of developing the curriculum.

Evaluation of pre-service teacher training, including the training of tutors and the development of materials.

Testing and comparison of alternative methods of in-service training

Investigation into the problems of supply.

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SEMINAR ON EDUCATIONAL RESEARCH AND DEVELOPMENT IN KENYA  
OCEANIC HOTEL, MOMBASA

22nd - 25th July 1980

PROGRAMME

- Monday, 21st July**      **Arrival and Registration**
- Tuesday, 22nd July**
- Introduction and Announcements - Dr. G. Eshiwani, Director, Bureau of Educational Research, KUC**
- Participants' Welcome - Prof. J.M. Waithaka, Deputy Principal, KUC**
- Welcoming Remarks - Mr. D. Mbiti, Chief Inspector of Schools, Ministry of Higher Education, and Mr. I. Omondi, Director, Ministry of Basic Education**
- Keynote Address - Professor W. Senga, Director, Institute for Development Studies, University of Nairobi Chairman. The Deputy Principal, KUC**
- Session 1. Production, Dissemination and Utilization of Research in Kenya, Professor P. Gacii, Secretary, National Council for Science and Technology Chairman. The Deputy Principal, KUC**
- Session 2. Issues in Educational Research in Kenya**  
**Issue 1. Guidance and Counselling and Cognitive Development -**  
Mr. G. Kilonzo, Department of Educational Psychology, KUC and Dr. D. Kiminyo, Department of Educational Psychology, KUC.  
Chairman. Mr. S. Watuma, Guidance and Counselling Unit, Ministry of Higher Education.
- Session 3. Issues in Educational Research in Kenya**  
**Issue 2. Teaching -**  
Dr. H. Ayot, Department of Communications and Technology, KUC and Dr. J. Igaga, Department of Educational Psychology, KUC  
Chairman. Dr. D. Kiminyo, Department of Educational Psychology, KUC
- Wednesday, 23rd July**
- Session 1. The Role of Research in Teacher Education, Mr. J.K. Koinange, Principal, KUC Chairman. The Deputy Principal, KUC**
- Session 2. Issues in Educational Research in Kenya - Issue 1 continued -**  
Mr. H.C.A. Somerset, Examinations Unit (Now Kenya National Examinations Council)  
Chairman. Mr. I. Omondi, Director, Ministry of Basic Education
- Session 3. Issues in Educational Research in Kenya - Issue 3. Communications -**  
Mr. H.J. Kanina, Director, KIE  
Dr. P. Kinyanjui, Director, Institute of Adult Studies, University of Nairobi  
Chairman. Dr. J. Maranga, Bureau of Educational Research, KUC

Session 4. Research Priorities in Education in Kenya,  
Mr. D. Mbiti, Chief Inspector of Schools, Ministry of  
Higher Education  
Chairman. The Director, KIF

Session 5. Issues in Educational Research in Kenya  
Issue 4. Access to Education -  
Dr. K. Kinyanjui, Institute for Development Studies,  
University of Nairobi  
Chairman. Dr. B. Mutua, Department of Administration,  
Planning and Curriculum Development, KUC

Tuesday, 24th July

Session 1. Issues in Educational Research in Kenya -  
Issue 4 continued -  
Mrs. A. Krystall, Bureau of Educational Research, KUC  
and Issue 6. Education and Economic Development -  
Dr. J. Nkinyangi, Institute for Development Studies,  
University of Nairobi  
Chairman. Dr. R. Mutua, Department of Administration,  
Planning and Curriculum Development, KUC

Session 2. Issues in Educational Research in Kenya -  
Issue 8. Science and Mathematics Education  
Mr. I. Omondi, Director, Ministry of Basic Education  
Chairman. Dr. J. Olenbo, Department of Educational  
Administration, Planning and Curriculum Development, KUC

Session 3. Issues in Educational Research in Kenya -  
Issue 7. Political Education and Social Policy -  
Dr. R. Njoroge, Department of Educational Foundations,  
KUC and Dr. S. Bogonko, Department of Educational  
Foundations, KUC  
Chairman. Dr. E. Standa, Department of Educational  
Communications and Technology

Session 4. Gaps in Educational Research in Kenya,  
Drs. D. Court and K. Kinyanjui, Institute for Development  
Studies, University of Nairobi and Dr. G. Eshiwani,  
Bureau of Educational Research, KUC  
Chairman. Mr. G. Owino, K.I.E.

Friday, 25th July

Session 1. Brief Reports from Research  
Organizations  
Dr. J.S. Maranga, Bureau of Educational Research, KUC  
Mr. F.A. Opondo, CBS  
Dr. K. Kinyanjui, IDS

Chairman. Dr. E. Oyugi, Educational Psychology  
Department, KUC

Session 2. Closing Session - Recommendations  
Dr. G. Eshiwani, Bureau of Educational Research, KUC  
Chairman. Dean, Faculty of Education, KUC

Closing. Prof. J.K. N'geno, Minister of Basic Education  
(read by Mr. Omondi)  
Chairman. Dean, Faculty of Education, KUC