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Towards the making of education policy in Kenya: Conclusions and implications

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This paper uses the SACMEQ II data to carry out an analysis of classroom context factors that accounted for student scores in reading and mathematics as well as a review of methods used to derive policies in Kenya in order to emphasise the need for evidence-based research for the derivation of policies for the leadership and management of primary education in Kenya. The paper goes further to explain the advantages of the approach as well as some of the impediments. Some suggestions of measures needed to foster the approach are provided. It emphasises that this approach is a necessary ingredient for effectiveness and efficiency in education.

Evidence-based research, policy-making, management of education, school effectiveness, Kenya

INTRODUCTION

Studies exploring factors that influence student achievement have been numerous. Findings from such studies have shown that the varying levels of student achievement were attributed to socio-economic factors, student ability and family circumstances implying that school facilities, curriculum and teacher characteristics had a minor influence on student achievement (Coleman et al., 1966; Jencks et al., 1972). These findings for a long time remained the standard by which schooling was measured and thus stimulated an in depth quest for more information on factors that influenced student achievement. This gave rise to the body of knowledge categorised as the school effectiveness studies.

The school effectiveness studies were able to identify the weaknesses of the previous studies, namely their failure to include adequate measures of school and classroom process variables, which then resulted in the underestimation of the influence of these effects. These failures led to the variance being attributed to family background and not to educational processes (Reynolds, Teddlie, Creemers, Scheerens and Townsend, 2000). Furthermore, these studies were unable to model the complex interrelationships between inputs, processes and outcomes including indirect effects and reciprocal effects in terms of the inherent nested structure of schooling (Rowe, 2004; Wenglinsky, 2000) as a consequence these studies resulted in inconclusive outcomes.

Following advancements in research methods and analytical procedures measures such as structural equation modelling techniques, as well as multilevel modelling, have enabled researchers to estimate the influence of variables operating at different levels of analysis. The result has been that school effectiveness studies have been able to test the effects of schools as well as classrooms and their interactions on student achievement (Hill and Rowe, 1996; Rowe and Rowe, 1999; Hattie, 2003). The results emanating from some of these studies have shown that there was more variance to be explained at the classroom level than at the school level (Rowe, Turner and Lane, 2002), for it was here that there were marked differences in progress made by students in different classes (Rowe, 2002). However, like the previous studies the findings have also remained inconclusive.

In this article, the results of the analysis of SACMEQ II data for reading and mathematics at the classroom level for Standard 6 pupils in Kenya are discussed. It is further emphasised that findings from research and an analysis such as this and others need to be used to derive policies for the leadership and management of primary school education in Kenya. This involves an attempt to shift the focus of the education managers to the importance of planning for quality education. First, a report on the findings of the analysis of the SACMEQ data is provided followed by a brief overview of the current policy decision-making approach used in Kenya as well as its limitations. In this way a case is argued for evidence-based research for policy development in managing education in Kenya. Some recommendations are made that suggest tactics and strategies which the policy makers in education in Kenya can use to move in this direction and then some policy suggestions are given in view of the findings of the study followed by a conclusion to the study.

Given that UNESCO (2005, p.107) noted that "emphasis on access to education has led to inadequate attention being paid to quality" it is thus necessary that more attention should be given to educational quality through a study such as this to provide feedback that might be used to assure and develop quality in classrooms as a means of improving student learning (Teddlie and Reynolds, 2000). Furthermore, a major report (Republic of Kenya, 1999) emphasised that the Ministry of Education needed to give more priority to research in the advancement of education for it was evident that this area had not been richly developed in Kenya.

THE STUDY

This study examined the effects of identified class-related factors on student achievement in mathematics and reading for Standard 6 pupils in Kenya using a multilevel technique, Hierarchical linear Modelling (HLM) (Raudenbush, Bryk, Cheong and Congdon 2004). Three models were tested in this study, one for student achievement in reading, another for achievement in mathematics, and a third for mathematics achievement controlled for reading performance. The results indicated that the average student characteristics as well as some teacher characteristics and practices as well as some classroom context factors influenced student scores at the classroom level as shown in Table 1.

THE FINDINGS

From the study, as indicated in Table 1, the following factors were found to account for much of the variation in student scores for both mathematics and reading.

Student characteristics influencing student achievement

The study showed that student characteristics had direct effects on students' scores in both reading and mathematics.

1. *Student age in months*: Younger students performed better in reading and mathematics than older students.
2. *Gender*: Girls performed poorly in both reading and mathematics
3. *Speaking English at home*: Speaking English at home had a significant positive effect on student scores in both reading and mathematics, but not in mathematics achievement controlled for reading performance.
4. *Total number of possessions in the home*: Having more possessions in the home had a significant positive effect on student scores in reading and mathematics.
5. *Father's education*: Students whose father had a high level of education performed better in reading and mathematics.

6. *Extra tuition*: Having extra tuition did not have an effect on student scores in either reading or mathematics.
7. *Grade repeating*: Grade repeating had a significant negative effect on student scores in reading and mathematics. No effect was reported for mathematics achievement controlled for reading.
8. *Absenteeism*: There was no direct effect of student absenteeism on student scores in all the three models tested.
9. *Having regular meals per day*: There was a significant positive effect of having regular meals per day on scores for mathematics.
10. *Reading scores*: There was a significant positive effect of reading scores on mathematics achievement.

Table 1. Significant factors influencing student achievement in mathematics and reading

Direct effects		Reading	Mathematics 1	Mathematics 2
Student characteristics	Age in months	*(-)	* (-)	* (-)
	Gender	*(-)	* (-)	* (-)
	English at home	*(+)	* (+)	nil
	Possessions	*(+)	* (+)	nil
	Fathers education	*(+)	* (+)	nil
	Extra tuition	nil	nil	nil
	Grade repeating	*(-)	*(-)	nil
	Absenteeism	nil	nil	nil
	Meals per day	nil	*(+)	*(+)
	Reading score	NI	NI	*(+)
Teacher practices	Giving homework	nil	nil	*(+)
	Correcting homework	*(+)	*(+)	nil
Teacher characteristics	Teacher age /experience	nil	nil	nil
	Teacher Gender	nil	nil	*(-)
	Teacher scores/knowledge	*(+)	nil	nil
	Teacher qualification	nil	nil	nil
Teacher support	Teacher in service education	nil	nil	nil
	Support from inspectorate	nil	nil	nil
	Support from head teacher	nil	nil	nil
	Support from resource centre	nil	nil	nil
Classroom characteristics	Pupil-teacher ratio	*(-)	*(-)	nil
	Pupil place to write	*(+)	*(+)	nil
Classroom context	Pupil books at home	nil	*(+)	nil
	Pupil absence	*(-)	nil	nil
	Pupil light at home	*(+)	nil	nil
	Pupil possessions	nil	*(+)	nil
	Pupil mothers education	*(+)	*(+)	nil

Significant effect; (+) or (-) direction of effect; NI: not included; nil- no significant effect

Teacher practices influencing student achievement

1. *Giving Homework*: The practice of giving homework had a positive and significant effect on student scores in mathematics achievements controlled for reading performance.
2. *Correcting homework*: There was a significant positive effect of correcting homework on student achievement in reading and mathematics.

Teacher characteristics influencing student achievement

1. *Teacher age and experience*: There was no direct effect of teacher age and experience on student scores in either reading or mathematics.
2. *Teacher Gender*: There was a direct effect of gender on student scores in reading and mathematics indicating that boys performed better than girls.
3. *Teacher scores and knowledge*: There was a highly significant effect of teacher's knowledge in reading on student scores in reading. No effect was found for mathematics.
4. *Teacher qualification*: No effect was found for the influence of teacher qualifications on student scores in reading and mathematics.

Classroom characteristics influencing student achievement

1. *Pupil-teacher ratio*: A high pupil teacher ratio had a significant negative effect on student scores in reading and mathematics
2. *Having a place to write*: Having a place to write was shown to have a positive effect on student scores in both mathematics and reading.

Classroom context factors influencing student achievement

Several variables combined to influence the classroom climate that interacted with student level factors to have an effect on student scores. Thus on average students in a classroom where there were high levels of books at home performed better in mathematics, no effect was reported for reading. Furthermore where the level of absenteeism in a classroom was on average high, there was a significant negative effect on student scores in reading, but no effect was reported for mathematics.

Where the average number of students in a classroom had a stronger source of light at home there was a significant positive effect on scores in reading, but no effect was reported for mathematics. In classrooms where the average number of students had a high level of possessions in the home, there was a significant positive effect on student scores in mathematics, but no effect was found for reading as well as for the mathematics controlled for reading model.

Additionally, where the pupils in a classroom had a higher percentage of educated mothers, there was a significant positive effect on student scores in reading as well as mathematics, but not in the model for mathematics controlled for reading performance.

These findings demonstrate the need for reforms to be directed to the classroom level and this can be realised if policy directives for the improvement of learning are derived from evidence-based research as this ensures that decisions for the leadership and management of education are soundly based.

Teacher support factors influencing student achievement

No direct or indirect effects were found for the following variables in the models tested in this study:

(a) teacher in service,

(b) support from inspectorate,

(c) support from head teacher, and

(d) support from education resource centre.

DISCUSSION

Research and Policy making in Kenya

Given that this thesis relied on an empirical study to draw conclusions for policy making it is emphasised that the use of research such as that of the SACMEQ project in order to derive policies for the primary education sector in Kenya is crucial. This must entail the use of research-based evidence, through which, the Ministry of Education can improve service delivery at the classroom level, as well as at the general leadership and management level of the primary education sector. With evidence from research it is possible to make well-informed decisions about policies, programs and projects and in this way evidence is put at the heart of policy development and implementation (Davies, 1999a, cited in Davies, 2004). This approach differs from opinion-based policy making that relies on the selective use of evidence or untested views often inspired by ideological prejudices or speculative conjecture (Davies, 2004). Furthermore such an evidence-based approach ensures that information is gathered, appraised and used to inform both policy making and professional practice.

In their report, UNESCO (2005) recognised that schools needed to have regular access to evidence-based practical knowledge about what worked best in classrooms. Moreover, research enables teachers as well as schools to reflect on their practices, and their performance, and enables them as well as policy makers to inform their understanding of the strategies needed to improve teaching and learning while at the same time providing for the knowledge needs of the policy makers.

This evidence-based approach is emphasised in this study because various other studies as well as experience, have shown that research utilisation in the policy making process in education is low, as evidenced by Muijs and Reynolds (2001) who stated, " Policy makers have been attracted to the prescription of policies for which there is no apparent evidence of effectiveness…" (p.217). Indeed some critics have emphasised that the political nature of the policy making process has masked the use of research in shaping policy (Nutley, 2003), while others have emphasised that organisational changes are needed if research has to be followed (Good et al., 1997). Additionally, the quality of the evidence being made available for decision-making and action has been questioned for being inadequate or incomplete. This lack of evidence seriously impedes policy formulation and implementation and thus there is an urgent need for evidence informed management that is based on sound evidence (Tranfield, Denyer and Smart, 2003).

Decision-making in the education sector in Kenya has been guided by a number of policy documents. These include development plans and reports of commissions, working parties and committees, and from international research sources such as the United Nations Children's Emergency Fund (UNICEF), the Japanese International Cooperation Agency (JICA) and the World Bank (Republic of Kenya, 1999). Furthermore the principles and values embodied in international declarations such as the United Nations Charter of 1946, the Convention on the rights of the child, and the Dakar Framework on Education for All have also been studied and used. Nevertheless, political ideologies and policies have often been used in order to win the electorate and have resulted in major changes in education (Bartoo, 2004). Moreover, in some cases, crisis situations have led to hurried decisions that have been inadequate and inappropriate.

Although it is recognised that there has been some progress in moving towards using evidence-based research for policy in education (Nzomo, 2005), more is still urgently needed. This is because according to "The Kenya Education Sector Strategic plan 2003-2007" there was "scarcity of stated policy priorities, and targets in important areas; and lack of effective participation by stakeholders in the management of the sector… weak sector monitoring and evaluation systems" (p.2). These have been some of the issues faced in the management of the education sector in

Kenya and thus these need to be addressed for the development of an effective and efficient education system.

Furthermore, Rowe (2002) asserted that more efforts were needed to ensure that schools, systems, and teachers' had credible information regarding their relative contributions to performance and effectiveness. Thus he argued that indicator systems that facilitated benchmarking of performance against external standards or reference points needed to be put in place. These tactics and strategies are needed in Kenya, because such systems are powerful stimulants to strategic interventions in policy and practice that lead to substantial improvements in the operation of the schools and teaching in the classrooms (Rowe, Turner and Lane, 2002).

Moreover, the Ministry of Education in Kenya needs to build a strong research base to form the foundation for policy development in education and for effective professional management. Thus there is need to strengthen and sustain research activities as well as to undertake continuous reviews in education in order to modernise and expand the education system in Kenya in response to changing circumstances as well as to enhance the ideal of continuous quality improvement (Republic of Kenya, 1999). Moreover, in recent years, Kenya like other countries has ratified a number of international agreements in education such as 'Education for All', 'The Children's Act', and 'The Attainment of the Millennium Goals' that potentially require both research and policy analysis (Stone, Maxwell and Keating, 2001).

The Ministry of Education, Kenya needs to adopt this approach, for in evidence-based research, it is necessary to place greater emphasis on long-term broad goals and outcomes rather than short-term outputs (De Broucker and Sweetman, 2001, cited in Bach, 2003) and thus contribute to both the production and use of professional knowledge (Hargreaves 2000, cited in UNESCO, 2005, p.177). According to UNESCO (2005), "this view stresses the generation, mediation, and dissemination of educational knowledge in such a way that it is useful for teachers, school managers and policy makers" (p.177). Furthermore, such an approach has also been commended for its focussed attention on the need for accurate, reliable and defensible collection, dissemination and utilisation of information (OECD, 1994). Additionally, it ensures that the policy decisions made are based on what has been proven to work as well as on knowledge about the nature of social problems, knowledge of the interventions that has been used to address them, as well as knowledge of evaluations of how the potential interventions could and should be implemented (Nutley, 2003).

Moreover, evidence-based research is emphasised because of its advantages in maintaining and improving the accountability of public funds (Bach, 2003). Furthermore, its association with the dispersal of power among a number of actors including the civic, public, and private sectors, and governments have demanded more open and transparent governance, and greater accountability for public policy and programs; improved dialogue and partnerships among government policy makers, peoples and organisations (Webster, 2002). Moreover, evidence based decision-making leads to the collection of reliable information and measurement needed for education (Hill, 1995a, cited in Wyatt, 1996). Furthermore, it focuses attention on educational accountability and improvement (OECD, 1994). It also has the advantage of rigour, reliability, relevance and independence (Stone et al., 2001), and has been shown to offer a positive prospect for improving policymaking and program development and assessment.

Although this paper emphasises the advantages enumerated above, it is recognised that the policy making process is complex, and the pressures on governments, the effects of lobbying, local crises, global changes, the need to focus on re-election, and the influence of opposition parties together with the different approaches of researchers could all work to derail evidence-based research from influencing policy making (Bach, 2003). It is also noted that pragmatism, which prevails in most Government organisations especially with respect to policy making, has tended

towards the avoidance of costly innovation and change or departure from routine practice and either the marginal alteration of existing policies or reactive responses to problems that have arisen (Stone et al., 2001). The result of this has been that creativity is discounted or stifled, new ideas are rejected as unrealistic, and research findings are completely ignored, given the already costly investments in existing policies. In some instances major crises are required before any re-evaluation of policy occurs.

A crucial first step necessary in using this approach is to recognise and work through the limitations that can impede its use and practice. This is because the research-based evidence available may at times be insufficient for informing many areas of policy (Nutley, 2003). Furthermore, most government departments are not organised to make the best possible use of science and technology in delivering such objectives as revealed in a study by the Council for Science and Technology (Cabinet Office, 1999, cited in Nutley, 2003, p.9) and Kenya is no exception to this. Moreover, vested interests, disagreements among decision makers may well, override the most convincing research (Black, 2001). Furthermore, practitioners may not be trained in interpreting research and given that most policy decisions are commonly made in the context of money, power and precedent (Donald, 2001), evidence based research may not be considered as central to decision making in these circumstances.

Conversely, it is often argued that commonly research may not be designed to be relevant to policy-making while at other times research often fails to have an impact because the policy makers do not find research findings to be central to their decision-making (Stone et al., 2001). They argue that this research-policy predicament can be attributed to the: (a) inadequate supply of policy relevant research; (b) lack of access to research data; (c) poor policy comprehension of researchers towards the policy process and relevance of research to the process; (d) ignorance of politicians about the existence of policy relevant research or incapacity of overstretched bureaucrats to absorb research; (e) leaders and policy makers being dismissive, unresponsive or incapable of using research; (f) issues of censorship and control; and g) questions surrounding the validity of research findings. Moreover the widespread use of evidence-based approach has been in many instances considered to threaten the power, status and identity of potential users of research (Stone et al., 2001). These factors continue to inhibit the use of research to make decisions in many countries including Kenya and other Sub-Saharan African countries.

Fostering a New Approach

In order to foster this approach it has been recommended that strategies were needed such as the initiation of forums that would bring researchers, sponsors and users of research evidence together to identify national research priorities, build research capacity, establish criteria for the quality of research, as well as identify ways to improve the impact of research (Nutley, 2003,p.5). Furthermore, an analysis of the policy process has indicated that sustained community networks should be established outside the formal government institutions where research evidence could be debated in order to shape a policy agenda, as well as to make decisions that would be facilitated by the use of evidence (Nutley, 2003, p.11). Moreover, policy makers needed to be more involved in the conceptualisation and conduct of research and this could only be done through providing greater access to information, including preceived research priorities to the researchers, who in turn should organise and communicate their needs better (Black, 2001).

Another issue has been the need to sustain relationships between researchers and policy makers during and beyond the research period (Black, 2001). Black suggested that the creation of a ‘policy community’ that consisted of appropriate people such as civil servants to bring knowledge into policymaking forums, journalists to engender wider interest, and practitioners to translate the new knowledge into practice was necessary. In this way, a knowledge infrastructure that

contributed to the production, and use of professional knowledge would be created (Hoppers, 2004, Cited in UNESCO, 2005, p.177).

Communication networks between policy makers and researchers through seminars, workshops, for discussing and disseminating research have been recommended, for in these collaborative forums, the research agenda could be set, interpreted and the implications for policy and practice discussed with the practitioners, policy makers and the researchers (Stone et al., 2001). In these ways different groups with a common interest such as the local government, academic community, as well as the wider research communities would be engaged in the policy making process that could facilitate strategic planning.

Another measure required was an organised and systematic dissemination of research to impact on discussion and debate so that there was an influence on the practices of organisations through briefing papers, regular reviews and engagement with highest level decision makers (Stone et al., 2001). This would ensure that evidence was disseminated and integrated into policy. Moreover, there was the need for the development of effective means of providing wide access to knowledge. The Government therefore needed to provide open access to information especially to studies carried out by the Government, linking research and development strategies to departmental plans, as well as integrating analytical staff at every stage of the policy development process, encouraging collaboration among statisticians, researchers and economists, casting external researchers more as partners than contractors and also by seconding more university staff into government (Bullock, Mountford and Stanley, 2001).

Further, it has been recommended that the Ministry of Education could make use of research based evaluation studies in order to make effective policy changes and modifications to public education as well as in training systems as suggested by (Nutley, 2003). This might entail carrying out systematic reviews of existing research to extract the most robust, rigorous and relevant evidence (Stone et al., 2001). In addition, the use of research based evaluation studies, also known as randomised experimental trials, should become a standard tool of policy design which could be used to identify the impact of policy changes on learning environments (UNESCO 2005, p.75). This approach, however, would need to be used in combination with other methods such as the use of traditional survey analysis, program evaluation, focus group feedback, public engagement, literature reviews, with regular audits to supplement them (Bach, 2003). In this way the effects of policy on student learning and development could be estimated.

The Role and Functions of the Ministry of Education Science and Technology, Kenya

The Ministry of Education, Science and Technology, as an organisation is rich with a varied database, encompassing data from the Kenya National Examination Council, Teachers Service Commission, and the Kenya Institute of Education among others. These databases can be used to monitor and evaluate the education processes and the results used effectively for the management of the primary school sector in Kenya both at the school, district and national levels.

It is imperative that a regular evaluation of research efforts is used as a measure by governments to impose requirements on research institutions to account for their use of funds and to ensure the relevance of their research for policy. Only in this way would researchers focus on areas such as the implementation of policy to identify causes of policy failure that might be the result of incomplete research, flawed policy design, and insufficient resources (Stone et al., 2001).

Recognition of the need for an elaborate management information system program to improve access to educational data and information through the websites as well as to develop and update a policy tracking database system becomes an important step in this direction (MOEST, 2005). This

signals that capacity building for staff in policy making and development as well as research design and evaluation also becomes necessary as a first step.

Another crucial measure is for the Directorate of Basic Education, to take a lead in designing research strategies for specific policy areas to ensure that it structures research funded by the government as well as by other bodies as suggested by Nutley (2003). This function needs to be coordinated by an educational research council whose role is to develop research policy, promote quality, relevance and efficiency in research, administer grants for research as well as provide advice for the development of the Ministry's general research policy (Skodvin and Svensen, n.d.).

Overall, policy makers need to ensure that research evidence has an impact on the policy making process, the organisation of service delivery and patterns of professional practice and this calls for sound knowledge management (Nutley, Davies, Walter, 2003).

The Implications of the Findings of this Study for Policy Making

Based on evidence from this study there is need for the Kenyan Government to review its policies with respect to several different areas involving both in-school and out-of-school or system policies in order to address the concerns discussed above. First in-school policies need to relate to four class-related practices namely: (a) homework, (b) extra tuition, (c) school attendance, and (d) grade repetition. Primary schools in Kenya need policies related to these factors and these should include expectations, consequences, guidelines, and expected outcomes with measurable indicators. This is because the effects of these practices differ from class to class and thus are better managed at the school level.

Second, at the system level an important step is to develop or consolidate approaches to financial accountability by ministerial bodies, which entails creating new targets for education and encouraging schools and districts to work towards them. The attainment of these targets needs to be monitored and reported on regularly at the system level but with information and feedback to each school.

Research shows that knowledge in mathematics and reading is basic to education and thus given the centrality of mathematics and reading in a global context, there is need for policies that integrate all resources available in the country rather than maintaining separate efforts that are enhanced by a departmental approach to issues. These policies should include expected outcomes that involve:

a) monitoring the setting and completion of homework;

b) building the extra tuition currently provided into the school program;

c) establishing incentives for school attendance and monitoring attendance data at classroom, school, district and system levels;

d) reducing grade repetition and monitoring evidence of change in terms of achievement; and

e) ensuring that students have a place to write, which involves providing desks and chairs for all students in a school.

There are also three important resource-related issues where policy is needed:

a) class size,

b) a regular place in the classroom for each child to sit and work, and

c) meals provided at school.

This is because the findings of this study indicate that these are very crucial classroom characteristics that are basic for the attainment of student scores. Efforts are needed to identify the best approach to take in tackling these issues. It is crucial that the changes in these factors are closely monitored at the school level and addressed at each stage of change.

Effective class policies are also needed to address issues of student achievement for Muijs and Reynolds (2001) stated "teachers especially those in ineffective settings were likely to benefit from classroom level policies that are close to their focal concerns of teaching and curriculum than by policies that are managerial and oriented to the school level" (p.215). Furthermore, their study showed that school initiated policies were more likely to address the variation in achievement in different classrooms due to differences in student factors such as home work, and school attendance among others. Therefore strategies that dealt with low socio-economic status, and school attendance, that impinged on student scores in both mathematics and reading would be better managed at the classroom level. A general framework is however necessary to guide schools in this direction.

Moreover, emphasis on a school-related approach is also considered essential because leadership programs commonly are found no longer to take an incremental approach to change since such policies fail to make substantial changes to student learning and attainment and thus it is argued that leadership needs to be seen within a whole school or system context and to impact on classroom practice and the work culture of the school (Hopkins, 2003). This implies that what is needed is a shift from a management approach, to policies that not only have a direct influence on learning in the classroom but also to an approach that impacts on learning at the school, district and the system level as a whole.

There is also need to increase the attraction of funding to support research and monitoring of indicators and measured outcomes. Policies on the provision of improved essential services addressing poverty related issues such as the health and nutrition of pupils as well as the development of gender parity are also likely to improve student scores. In addition, policies and practices that place greater emphasis on teacher knowledge as well as better recruitment programs can also go a long way in making advances in student learning.

Removal of Departmental Barriers Within an Education System

Furthermore, it is emphasised that a certain focus on highly specific policies, as has been the case, often results in the departmentalisation and creation of boundaries, which are unsuitable in the overall management of education. It is recommended that partnerships, relationships and organisational change are the key to the effective leadership and management of education in Kenya, as this will result in a structure that runs across government departments with the capacity to draw all organisations and bodies involved in these areas to work closely together. This is also because the findings of this study as summarised in on Table 1 indicate that the significant classroom factors influencing student achievement relate to contextual factors in the field of education and extend to the key portfolios of health, welfare and finance. Thus there is need for an integrated approach to address the issues raised by the analysis.

An integrated approach should also be attained through public engagement, where partnerships are built between a school, its district and the community it serves (Resnick, 2000, cited in Cunningham, 2002). Cunningham added that this was because schools needed community support to meet mandated state and national performance standards as well as to develop local innovative programs. Further these would involve monitoring student progress in reaching goals but would also involve evaluating lessons learnt from both successes and failures. The input of the community, Cunningham added, was thus solicited before making policy to ensure that the community had an understanding of the issues that influenced academic achievement. These

issues included health and inadequate nutrition, absenteeism and other factors fostering involvement in advancing student achievement, as well as other outcomes associated with student well-being (Cunningham, 2002).

It is also suggested that a neutral, central commission for an integrated approach for the well-being of young people, with representatives from all sectors needs to be set up as a policy roundtable to facilitate a context for discussing how to advance student achievement and the well-being of all youth. This requires contributions from all sectors and stakeholders involved in education. The Sector Wide Approach Program (SWAP) in Kenya uses a similar approach where all stakeholders are engaged in sector planning in an integrated way for the provision of quality education and training and is geared towards: (a) alignment of sector objectives; (b) identification and prioritisation of interventions;(c) harmonisation of procedures including financing, procurement, accounting and; (d) integration and co-ordination of all programs implemented in the country (MOEST, 2005).

It is imperative that measures are introduced to create awareness programs for parents in areas where their participation is greatly needed, such as discipline, homework, reading, nutrition, and school attendance, through effective school based programs that are promoted through the parent networks currently existing in primary schools. Further these parental networks need to be strengthened to encourage more involvement of parents in the education of their children. This can be done through the voluntary participation of parents in school instruction in addition to their membership of school committees.

The findings also indicate that state initiated and controlled action may not necessarily be adequate in achieving desired improvements in quality of education (Vonk, 1997). Thus there is need for decentralisation so that schools are able to tackle their unique policy issues, particularly those related to school absenteeism, homework, grade repetition, nutrition status, as well as health of students in collaboration with other community and districts services. Some of the changes can be negotiated autonomously within educational institutions and others can be transacted independently by external interest groups and in this way a constant state of change needs to be maintained as, changes are continuously initiated, imitated, modified, revised and counteracted at the levels of the individual, family, institution, community and nation (Vonk, 1997). However, a framework is needed at the national level within which other levels can make their own decisions or alternatively create a balance between what the central level prescribes and for what it only creates a framework (Vonk, 1997). This makes necessary a radical change in school management in order to have qualified managers and school committee members who are able to steer the schools in this direction.

SUMMARY

This study shows that classroom and classroom contexts have considerable influence on student achievement in both mathematics and reading for Standard 6 students in the SACMEQ study of 2000. The variables investigated showed differential effects between subjects. However, in general it was found that average student characteristics had a marked impact on student scores at the classroom level and certain characteristics related to the teacher as well as the classroom context were also highly significant.

This study has provided a unique approach for analysing factors influencing student achievement in Kenya, away from the common approach, which considered only school effects as evidenced in the school effectiveness research literature. The findings of the study were able to show variation in student achievement as well as tackle questions related to student achievement, the results were not comprehensive enough as the study lacked other important measures of the outcomes of schooling such as attitudinal, social and behavioural competencies. Furthermore the SACMEQ

data lacked measures and evidence on the performance of students with disability. Moreover, since the study was cross sectional in nature it was not possible to measure student prior achievement as well as intake characteristics that would be considered important in a study such as this one (Bosker and Witziers, 1995).

It was also shown that it was the quality of learning that accounted for the variation in student achievement and the study emphasised that "it is at the level of the classroom that learning takes place and that there is substantial differences in the progress made by students in different classes" (Rowe, 2004). Thus schools need to look at their present processes and influence their desired outcomes (Cunningham 2002). Further it is important to reaffirm Snijders (2003) contention that "in educational research the largest contribution to achievement outcomes usually are determined by the pupil and the teachers, but the social context provided by the group of students in the classroom and organisation context provided by the school... may also have important influences" (p.676). This implies that all levels of influence need to be taken into consideration in the analysis of data before drawing conclusions. These involve the student level, the classroom level, the school level and the district level, because polices are not only made at different levels but also because the effects of educational provision operate at these different levels.

The findings of this paper may be added to the growing pool of evidence that is required before policy decisions are made through a general strategy to build on a pool of organisational knowledge that can be retrieved when there is need.

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