

# Factors Affecting Teachers' Implementation of Curriculum Reforms and Educational Policies in Schools: The Kenyan Experience

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### **Abstract**

Since Kenya attained independence in 1963, various curriculum reforms and educational policies have been recommended. Examples are the 8:4:4 system of education (1985), the cost sharing strategy in education (1988), the Free Primary Education (FPE) policy (2003) and the Subsidized Secondary Education policy (2008) among others. The aim of the curriculum/educational reforms in Kenya has been to achieve national development. However, we find that the process of policy implementation is always problematic. Teachers encounter various problems in trying to implement educational reforms in schools in Kenya. This paper is a discussion of the factors affecting teachers in the implementation of curriculum reforms and educational policies in Kenya. This paper highlights the issues of poor economic growth, politics, lack of facilities, institutional leadership, ability and inability to evaluate, lack of proper social amenities and infrastructure, ignorance and illiteracy. For each of the limitations, probable solutions have been advanced.

Keywords: curriculum, reforms, education, policies

#### 1. Introduction

Curriculum is the sum total of all the experience provided to the learners under the guidance of the school (Bishop, 1985). Ball (1990) defines policy as "the authoritative allocation of values; operational statements of values; statements of prescriptive intent". Educational reforms are actions or recommendations by those in authorities that are intended to make education provision better or to put right any faults or errors in the provision of education. Policy implementation is generally held to be the step that follows policy formulation and is viewed as "the process of carrying out a basic policy decision" (Sabatier and Mazmanian, 1983:143). Bhola (2004) suggests that policy implementation is the process of actualising, applying and utilising a policy in the world of practice. Hope (2002) sees policy implementation as a process of transforming educational policy into practice.

Since Kenya attained independence in 1963, various educational/ curriculum reforms and policies have been recommended. Examples are the 8.4.4 system of education (1985), the cost sharing strategy in education (1988), the Free Primary Education (FPE) policy (2003) and the Subsidized Secondary Education policy (2008) among others. According to Abagi and Odipo (1997) education reform efforts in less industrialised countries (like Kenya) have aimed at making education an effective vehicle for national development. Nafula (2001) contends that in Kenya, one goal of educational reforms has been to ensure that educational opportunities reach all segments of the population especially those living in economically disadvantaged areas. This is the reason why the government of Kenya has had policy interventions aimed at achieving Universal Primary Education (UPE) and Education For All (EFA) currently.

## 2. Factors affecting teacher's implementation of curriculum reforms and educational policies

The process of implementation is problematic. Teachers encounter various problems in trying to implement curriculum reforms and educational policies in schools. This paper provides a discussion of the factors that affect teacher's implementation of educational reforms and policies in schools in Kenya. Various factors are discussed thus: poor economic growth, politics, lack of facilities, school leadership, ability and inability to evaluate, lack of proper social amenities and infrastructure, ignorance and illiteracy.

# 2.1 Poor economic growth

Majority of Kenyans are of middle income. This becomes an impediment in cases where an educational reform requires financial support from the members of the community. An example is the 8.4.4 system of education which was implemented as from January 1985. The implementation meant increased costs of education in putting up classrooms, workshops, home science rooms and laboratories. Many parents could not cope up with the costs and what followed was regional and gender disparities and declining enrolment ratios. Abagi (1997) comments that the result was a high wastage in the education sector as a result of high repetition and drop out rates.



Another example is the cost sharing strategy that was introduced in Kenya in 1988. This was a recommendation by the Kamunge report of 1988. With the cost sharing strategy, the government was to pay teacher salaries and those of educational administrators. The parents were to provide for tuition fees, textbooks, activity and examination fees. The community on the other hand was responsible of putting up physical structures and ensuring their maintenance (Kamunge report, 1988) The transfer of costs to parents at a time when they were still struggling to meet increased tuition costs brought about by the implementation of the 8.4.4 system of education was ill advised (Elimu Yetu Coalition, 2003). Deolalikar (1999) notes that disparities occurred in terms of access to quality of education since not all groups could marshal resources on an equal footing. The overall effects of the cost sharing strategy in education was the regression in all indices of participation and negative quality and equity impacts (East African Standard June 24 2001). It was difficult for parents and the communities to support education adequately making education beyond the reach of many households.

In Kenya, poverty levels have been rising in the country. The increased levels of poverty make parents unable to pay school levies for their children, to feed their children properly and provide adequate health services. Before the introduction of Free Primary Education in 2003, children of parents who could not afford costs of instructional materials, tuition fees, school uniform and activity fees tended to go to school irregularly and would eventually drop out of school.

Kenya also experiences the problem of low agricultural output. Rains are unpredictable especially in parts of North Eastern, Eastern and Coastal regions in Kenya. UNESCO (2006) report that in arid areas in Kenya pupils sometimes drop out of school due to famine. This is in such districts as Kitui, Mwingi,Makueni, Turkana, Mbeere, Garissa, Maralal, Samburu, Kwale, Isiolo and Marsabit among others. Letiwa and Koross (2008) report that thousands of children in Samburu district are out of school looking after livestock as a way of earning a living. Food is scarce in such areas and when available, expensive resulting to some families being only able to provide one meal a day or none at all. Other pupils are forced to drop out of school to take care of their siblings when their parents go out in search of food or to look for jobs to supplement the family income (UNESCO, 2006).

Another problem in Kenya is that teachers the implementation of the FPE as from 2003 has placed a heavy burden to the teachers due to the increased enrolments. The increased enrolments have resulted to an increased work load. Although the government of Kenya has currently reviewed teachers' salaries, we find that the income is still wanting because of the current economic demands in Kenya. The poor economic growth in Kenya has had negative impacts in the implementation of educational reforms and policies in Kenya.

## 2.2 Politics

Education policy making and implementation is a political process especially in Kenya (Elimu Yetu Coalition, 2003). Educational planners and administrators rarely carry out policy formulation and implementation without interference from politicians. The interferences take various forms like decrees and political announcements from the top. Elimu Yetu Coalition (2003, P.10) notes:

In most cases planners are called upon to execute decisions already made by political establishment rather than advice. The institutions of committees and commissions have in some cases been used by the establishment to lend credence to policies and systems that would want to see implemented.

Examples of policies in Kenya that have been implemented with political influence include the 8:4:4 System of Education (1985), the Free Primary Education (FPE) programme (2003) and the Subsidized Secondary Education policy (2008)

The 8.4.4 system of education was a recommendation by the Presidential Working Party on the Establishment of the Second University (1985). The terms of reference of the commission were to discuss the possibilities of establishing a second university. However the commission went out its way to recommend a change on the education system from the 7:4:2:3 to the 8:4:4 education system (Elimu Yetu Coalition, 2003). This made critics suspect that there was a hidden mandate by the political powers to change the education system.

There were mixed feelings countrywide in the implementation of the 8:4:4 system of education in Kenya. Many people were unconvinced of the change. It was a total overhaul of the previous system of education (7:4:2:3) with changes in the structure and the introduction of very many new subjects in all levels of education (Syomwene, 2003) The implementation was also done in a hurry without allowing adequate time for planning (Muya, 1985). When it was realised that many people were against the 8:4:4 system of education the president intervened and ordered that there was to be no further debate on the new system of education and that it would be implemented as from January 1985. As a result schools and teachers experienced very many problems during the implementation such as:

- i) In most cases parents were not able to provide the resources and facilities like classrooms, work shops and home science rooms.
- ii) There was lack of trained teachers especially in technical subjects.
- iii) The curriculum was congested and burdensome.



- iv) It was examination oriented resulting to rote learning and memorization.
- v) The issue of relevance and quality was raised.

What followed was increased drop out rates, low completion rates, low transition rates. (Abagi, 1997). Elimu Yetu Coalition (2003) points out that the 8:4:4 system of education greatly impended efforts in achieving Universal Primary Education (UPE).

The Free Primary Education (FPE) programme was implemented as from January 2003. It was an attempt by the National Alliance Rainbow Coalition (NARC) government to fulfil the election campaigns they had made prior to coming to power. The implementation was haphazard without adequate planning. The Free Primary Education programme saw a drastic increase in school enrolment (Rukunga & Mutethia 2006). Average class sizes have risen from 50 to between 60 and 70 with one teacher per class. This is alarming due to the fact that although teachers are expected to deal with the swollen class sizes, their salary negotiations with the government have not been met yet. Also, although the government constantly employs teachers, there's still teacher shortage in the country.

The Free Primary Education has helped in achieving the goals of Universal Primary Education (UPE) but it has resulted to such challenges as:

- i) Secondary schools have not been able to admit all those who quality for secondary schools (UNESCO, 2006).
- ii) Free primary education does not cater for informal/community schools located in slums (East African Standard 9<sup>th</sup> August 2003)
- iii) It has a negative impact on Early Childhood Development (ECD) centers serving poor children (UNESCO, 2006). Poor parents are choosing to withdraw their children from ECD centres or keep them at home until they reach the age of primary school.
- iv) It's faced with the risks of overflowing classes, teacher shortages and inadequate facilities (Kirimi and Mwaniki, 2004).
- v) Due to teacher shortages, the few teachers are given a heavy work load making it difficult for them to perform to their optimum levels and realize quality education. (UNESCO, 2004).

The Subsidized Secondary Education is the most current reform in education and was implemented as from January 2008. With this reform, the government pays for tuition fees for students while parents meet boarding costs and buy school uniform. This is a good public initiative which would increase access to secondary education while relieving the cost of education on parents (Ngare, 2007). It was assumed that it would allow households to increase spending on other needs such as health and post secondary education and training hence impact positively on poverty reduction. However, we find that with the increasing inflation on all commodities, some of these aims are yet to be realized. Another challenge has been that for schools to benefit from the Subsidized Secondary Education, they should have classes of between 40 and 45. Some schools however do not meet this requirement.

Educational/curriculum reforms require a strong political will (UNESCO, 2004). Literature on policy implementation highlights the importance of political commitment by leadership as critical to policy success (Sabatier And Mazmanian, 1983). This is evident in Kenya where most of the educational reforms that have been implemented have been those with a strong political hand. These include 8.4.4 system of education (1985), the cost sharing strategy in education (1988) and the Free Primary Education programme (2003). If we consider the Koech report (2000) for instance, we realise that although the recommendations were attractive, they have been partially implemented because of lack of political will. The Koech report was commissioned in 1998 to review the 8:4:4 system of education. It recommended a shift from the 8:4:4 system of education to the previous 7:4:2:3 education system. However according to the Koech report (2000), the additional two years were not to bring back the 'A' level segment but it was a pre university preparation. Other recommendations were the need to:

- i) have a manageable curriculum in all levels of education
- ii) expand the basic education to twelve years in order to include both primary education and secondary education.
- iii) recognise such aspects of education like Early Childhood Education, technical and special education.
- iv) consolidate all laws that deals with education under one comprehensive act to resolve the problem of fragmentation.
- v) introduce modular learning and credit accumulation in post secondary education to allow for credit transfer between and among institutions (ROK, 2000).

The Koech report is the most comprehensive and forthright of all commission reports since independence and it covered virtually all aspects of education (Elimu Yetu Coalition, 2003). However, it has only been partially implemented. The government criticized it saying that the recommendations were impractical and could not be



implemented because of lack of funds. However, no cost analysis was done to prove that. Abagi (2000) points that an analysis by a team of educationists and economists revealed that the implementation was possible with the budgetary allocations to education.

Political instability is a major set back in policy implementation and practice. A country with political stability experiences economic and social sustainability, accountability, professionalism, participation, and democracy as a result of regular free and fair elections as provided in the constitution. On the other hand, a country with political instability experiences violence which hinders policy implementation at national and social levels. This is because both teachers and students get uncertain about their lives. An example is the post election violence that rocked Kenya in the years 2007/2008. Learning in most schools in Kenya and especially in the Rift Valley was paralysed during this period. Some schools were burned down as well. In Mt Elgon and Samburu districts schools closed due to insecurity. In Samburu district the persistent attacks by the bandits have greatly impaired education in that area. Letiwa and Koross (2008) report that in Samburu district poverty and frequent inter ethnic conflicts among the pastoralists living in the districts have prevented thousands of children from going to school. In addition many teachers have secured for transfers out of such districts due to insecurity.

We cannot do away with politics because its part of human life. We can however avoid violent politics. Schooling itself is political in that:

- i) schools serve a community represented by Board of governors (BOG), school committees, Parents Teachers Association (PTA) and students.
- ii) the hidden curriculum., the subject matter in the course books, school uniform, the designs in schools' physical structures, the extra curriculum activities among others all serve political interests.
- iii) the teaching force have their political interests.

Politics has thus affected the effective implementation of educational reforms and policies by teachers in Kenya.

#### 2.3 Lack of facilities

Most schools in Kenya have inadequate facilities like classrooms, workshops, and laboratories. UNESCO (2004) points out that few schools and colleges have access to computers, the internet and email facilities which are essential for research and learning process.

During the national conference on education and training held in Nairobi in November 2003, the issue of availability of facilities and resources in educational institutions in Kenya was debated on. Technical and Vocational training institutions were cited as grossly under funded making it difficult for them to acquire modern and relevant learning facilities to provide quality education (UNESCO, 2004). Public universities are poorly funded. Due to inadequate funding, the universities have not been able to undertake capital development in order to provide up to date teaching and learning facilities and to give good pay in order to attract the best staff. The universities mostly rely on old equipment, student services, library services and investment in new information and communication technologies. It was also noted that higher institutions like public universities have enrolment rates that do not match with their resources. They have expanded enrolment without corresponding facilities and teaching/learning resources. The sum total of all this is declining quality of higher education.

With the implementation of the Free Primary Education programme currently in Kenya, the problem of inadequate facilities in rampant. According to Kirimi and Mwaniki (2004) no additional classrooms have been built to cater for the increased numbers. UNESCO (2006) reports that in most primary schools in Kenya there's poor school infrastructure. There's also a major shortage of desks (Kirimi and Mwaniki (2004).

According to UNESCO (2004) most schools in Kenya lack water and sanitation facilities Rukunga and Mutethia (2006) contend that most schools have inadequate sanitary facilities, they lack latrines and safe water for drinking. This is detrimental to effective learning in that in makes children vulnerable to common preventable diseases such as diarrhea. Substantial learning time is wasted if the rate of absenteeism from these diseases is rampant. According to Rukunga and Mutethia (2006) proper hygiene in schools is essential for enhancing effective learning, attracting enrolment in schools particularly of girls and in sustaining a reduced burden of diseases and worm infestation among pupils.

The two authors also report that despite the increased enrolments in primary schools in Kenya which is as a result of the Free Primary Education programme, water and sanitation facilities remain the same. Inadequate water and sanitation facilities mostly affect adolescent school girls. Most schools in Kenya also lack chalkboards and visual aids. The fore going discussion indicate that lack of facilities in schools in Kenya is a major problem affecting teachers in the implementation of educational reforms and policies in Kenya.

#### 2.4 School leadership

The leadership in schools plays a crucial role in enduring that the policies formulated in all levels are implemented in schools. According to UNESCO (2004) educational reforms require an effective management. Abagi (1999) contents that in Kenya we have inefficient school management which makes teachers lax. There's also lack of adequate supervision from the Quality, Assurance and Standards Officers(QASO's).



In Kenya, it is the head teacher who is in charge of school based supervision (Syomwene, 2003). He/she assigns duties to teachers and ensures that the duties are executed. He/she also organises in service courses for teachers, provides teaching and learning resources, motivates and encourages teachers. He/she also clarifies curriculum objectives for teachers and solves the needs of teachers. Head teachers thus need management skills. Capacity building for teachers, head teachers, education managers, parents and community members is also critical so that each of them is aware of his/her role in the education provision process.

#### 2.5 Ability and Inability to evaluate

Evaluation of policies entails finding out the extent to which they have accomplished what they set out to accomplish. Evaluation of educational reforms also deals with such question as who benefits from educational reforms? and who implements them?

Teachers have a big role to play in evaluating curriculum changes in schools (Shiundu and Omulando, 1992). They do this by formal methods of giving tests and examinations. They should use the examination results to help the students improve their performance and to improve the curriculum at school levels. The information from the teachers should then be passed to the education authorities like Kenya Institute of Education (KIE) with a bid to improve the curriculum.

However, Kenya like most developing countries lacks funds. Funds are important in evaluation process. Evaluation of policies is not constantly done leading to flaws in the implementation process. The 8.4.4 system of education was evaluated for the first time in 1998, fourteen years after it had been implemented. All along, students continued to perform poorly in national examinations and the out cry by parents was evident. However, apart from lack of funds the lack of a strong political will delayed the evaluation (Elimu Yetu Coalition, 2003)

## 2.6 Lack of proper social amenities and infrastructure

Kenya lacks good roads and access to fax, emails and internet which are essential in modern development. With the latest developments in the mobile telephone industry in Kenya and other developing countries as well, telephone communication has greatly improved. We also have the problem of slow internet connection in Kenya (Juma, 2001). UNESCO (2004) asserts that few schools and colleges in Kenya have access to computers, internet and email facilities which are essential for research and learning processes. In addition, computer resources like hardware and software are expensive for any university to afford in reasonable quantities and quality. Technology is very dynamic and most universities cannot cope with these changes in terms of cost and relevancy. Computers are essential in the teaching learning process and lack of them impends effective learning. A part for the fact that computers are lacking in most schools in Kenya, the teachers lack computer literacy skills as well.

Health facilities are also lacking in most schools and colleges in Kenya. Pupils are frequently absent from school due to common ailments especially in rural areas. This activates school drop out. The teachers themselves are also affected by the lack of health facilities. UNESCO (2006) postulates that in arid and semi arid areas of Kenya children sometimes miss school to assist in domestic chores such as fetching water which is found at long distances form their homes.

In Kenya we also have very few schools to serve the increasing population. Secondary schools are the fewest. With the increased enrolments brought about by Free Primary Education this situation is alarming. A lot of pupils get wasted after completing primary school. This problem militates against the achievement of EFA.

## 2.7 Ignorance and illiteracy

Kenya experiences the problem of ignorance and illiteracy in the implementation of educational reforms. More enlightened communities like in the urban areas take opportunities of government policies whereas ignorant and illiteracy communities may be reluctant to do so. In pastoral communities, early marriages are encouraged thereby preventing girls from attaining education (UNESCO, 2006). In Samburi district for instance many parents value their livestock more than education. Children are made to believe that taking animals in the forest is more important than attending classes (Letiwa and Koross, 2008).

## 3. Conclusions

Kenya like other developing countries has instituted educational reforms and policies with a bid to achieve national development. However, despite the efforts by the government, teachers encounter many problems and challenges in the implementation of the educational reforms. It is these challenges that have been responsible for partial and inadequate implementation of educational reforms in Kenya. The end result has been a decline in national development because achieving such goals as Education For All (EFA) and Universal Primary Education (UPE) still proves to be nightmare.

The following recommendations are suggested.

i) The need to increase budgetary allocations to the education sector. This way, the government can employ more teachers to cater for teacher shortages and fund schools more.



- ii) The need to make Early Childhood Education free and compulsory for all.
- iii) The need for the government of Kenya to hire teachers to teach in the Early Childhood Education centers.
- iv) The need to equip schools adequately with computers.
- v) The need to provide in-service education to head teachers on management skills.
- vi) Need to provide in-service education to teachers on Information Technology.
- vii) Parents need to be sensitized on the need to equip schools with physical facilities as is the requirement with FPE.
- viii) The need to carry out curriculum evaluation on a regular basis.

#### References

- Abagi, O. and Odipo, G. (1997) Efficiency of Primary Education in Kenya: Situational Analysis and Implications for Education Reform. Discussion paper No 004/97 Nairobi: Institute of Policy Analysis and Research (IPAR)
- Abagi, O (1999) Education for the Next Millennium: a Demarcation of Imperatives in Kimuyu, P. Wangacha, M, and Abagi, O, (eds) (1999) *Kenya's Strategic Policies for the 21<sup>st</sup> Century: Macro Economic and Sectoral Choices*. Nairobi: IPAR
- Abagi, O, et al (2000) Implementing the Report of the Commission of Inquiry into the Education System of Kenya (Koech report): Realities, Challenges and Prospects. Nairobi: IPAR
- Bhola, H.S. (2004) Policy implementation: Planning and Actualization. Journal of Educational Planning and Administration, 18 (3), 295-312.
- Bishop, G. (1985). Curriculum Development: A text book for students. London: Macmillan.
- Darkwa O. and Mazubuko, F. (2000) *Creating Virtual Learning Communities in Africa: Challenges and Prospects* Vol 5 No.5 Retrieved on June 2000 on http: II first Monday.org/issue.issues-5/darkwa/index.html.

East African Standard June 24, 2001

East Africa standard 9th August, 2003

- Elimu Yetu Coalition (2003) Reform Agenda For Education Sector in Kenya: Setting Beacon for Policy and Legislative Framework. Nairobi
- Hope, W. C. (2002) *Implementing Educational Policy: Some considerations for principals*. The Clearing House, 76 (1), 40-43.
- Juma, M. N. (2001) "From Traditional Distance Learning to Virtual Distance Learning: Higher Education in Africa, Trends and Challenges" in F. T. Tschang and T.D. Senta (eds) *Access to knowledge: New Information Technologies and Emergence of the Virtual University*, UNESCO/ Pergamon Press
- Kirimi, M. and Mwaniki, P. (2004) "Kenya Focuses on School Water, Sanitation and Hygiene" Nairobi NETWAS international at http://www 2.irc.nl/sshe/rational/index.hrml
- Kogan (1975) in Ball S. J. (1990) *Politics and Policy Making in Education: Explorations in Policy Sociology*. London: Routledge.
- Letiwa, P. and Koross, K. (Friday, June 20, 2008) "Thousands out of school due to poverty and Insecurity" in the *Daily Nation*, Nairobi: Nation Centre.
- MOEST (2003) Report of the Task Force on the Implementation of Free Primary Education. Nairobi: MOE
- Muya (1985) In The Daily Nation, Newspaper series
- Nafula, N. (2001) Achieving Sustainable Universal Primary Education Through Debt Relief: The case of Kenya. Nairobi: (IPAR)
- Ngare, P. (Friday, March, 2007) "Free Secondary Education: Major Campaign issue" in Daily Nation, Nairobi: Nation Centre.
- Republic of Kenya, (1981) Presidential Working Party on the Establishment of the Second University (Mackay Commission). Nairobi: Government Printer
- -----, (1988) The Committee on Education and Man Power Training for the Next Decade and Beyond (Kamunge report). Nairobi: Government printer
- -----, (2000) The Total Integrated Quality Education and Training Report (Koech report). Nairobi: Government Printer.
- Rukunga, G. and Mutethia, D. (AMREF) (2006)) School Sanitation and Hygiene Education (SSHE). The Regional Annex, East Africa
- Sabatier, P. A. and Mazmanian, D. A. (1983) Policy Implementation in S.S Negel (ed) *Encyclopaedia of Policy Studies* (pp 143-169) New York: Marcel Dekker.
- Shiundu, S. J. and Umulando, J.S. (1992) *Curriculum Theory and Practice in Kenya* Nairobi: Oxford University Press

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Syomwene, A. (2003) "The implementation of the 8.4.4 Secondary School English Curriculum in Kitui District In Kenya" Unpublished M.Phil thesis, Moi University Eldoret.

UNESCO (January, 2006) *UNESCO Policy Brief on Early Childhood* No.30 UNESCO (2004) *EFA News : A Newsletter of UNESCO*. Nairobi office issue VI

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