

Full Length Research Paper

A systems approach to education in Kenya: Implications on educational media program development

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Education is the driving force of any nation and like any other organization or enterprise, efficiency, effectiveness and quality ought to be the cornerstones. Development of educational media programs is a means of enhancing these cornerstones in a teaching/learning process. Systems' thinking requires that all components of a system interact in a complementary manner to support the functioning of the whole. The objective of this paper is to analyze the education sector in Kenya, examining the roles and relationships of its sub-sectors by application of systems approach, in order to determine their functions or dysfunctions. This paper further discusses the impact of absence of a functional system of education on media program development in Kenya. This discussion leads to a conclusion as to whether there exists a functional education system that can satisfactorily support development of educational media programs in Kenya. The implications of the conclusion made on media program development in Kenya are discussed and a way forward for improvement of media program development suggested.

Key words: systems approach, educational media program, media program development

INTRODUCTION

Each community or nation is characterized by problems, needs, aspirations, visions and philosophy of life that are unique to that particular nation. In order for a nation to focus on, address and achieve them certain mechanisms are put in place. Provision of education is one of these mechanisms. A nation may desire to provide for educational needs and aspirations of its citizens by developing a system through which this can be done. It is common to hear mention of one or other system of education. Currently, in Kenya we talk of the 8-4-4 system of education. In most cases it is not clear whether one has in mind the structural arrangement of the years spent in each level, or the component demands that ensure successful provision of education, or other matters. This paper aims at discussing what a system is in order to decide whether there exists a system of education in Kenya or not. Secondly, this paper discusses the implications of the decision made, on the development of media programs for schools in Kenya. The paper will therefore be divided into two main parts. The first part defines a system, describes attributes of a

system and relates them to provision of education, after which an examination of the situation in Kenya is highlighted to facilitate decision making on the existence/or non-existence of a system of education in Kenya. The second part focuses on the impact of the decision made in the first part concerning the existence of a system, on the development of media programs of schools in Kenya. In this section also describes what media program development and how this is reflected in the Kenyan education sector. Finally, conclusions and recommendations for future are made.

The definitions, descriptions and discussions made in this paper are heavily based on the systems thinking because, systems thought according to Hitch (1960) provide a viable approach to asking and answering questions on uncertainty on phenomena, especially education. Immegart and Pilecki (1973) support the application of systems thought in problem solving because it is holistic and contextual thus decisions made result from systematic relational thought, it offers an approach that is both practical and operational, it is futuristic.

Existence/non-existence of a system of education in Kenya

Definition and description of a system

Immegart and Pilecki (1973: 30) define a system as “An entity composed of a number of parts, the relationships of these parts and the attributes of both the parts and the relationships”. Alternatively, a system can be conceived as “some form in structure or operation, concepts or function, composed of knitted and integrated parts.

Banathy (1968) defines systems as deliberately designed synthetic organisms, comprised of interrelated and interacting components which are employed to function in an integrated fashion to attain predetermined purposes (Banathy, 1968).

Katz and Kahn (1966) view systems as entities of patterned activities of a number of individuals and that these activities are complementary or interdependent with respect to some common outcome, are repeated, relatively enduring and bounded by space and time. Briggs (1977) similarly defines a system as an integrated plan of operation of all components designed to solve a problem or meet a need.

Running through the definitions are the following facts:

1. A system is a whole or an entity
2. The whole has parts, components within it.
3. That these smaller parts/components in the whole are interrelated
4. That these parts have qualities which allow them to function as parts of a whole and that
5. These relationships themselves also have qualities.

Education qualifies to be called a system as it fits in the definition and description of systems given above. First, education is an entity that is manmade and that is established to solve particular problems and meet specific needs of society. Education as a whole has parts or components. For instance, there is the curriculum development component, materials and equipment component, the teachers' education, the monitoring and evaluation component, and the students, components that are interrelated as each affects the others. For example, the type of curriculum influences the training of teachers as well as evaluation of the system. It also determines the type of material and equipment needed and this has financial implications. These components have qualities, teachers and learners, have certain characteristics and qualities that they bring into the system. These are their values, preferences, skills and attitudes. These make them function as parts of the system.

Relationships between components in education also have qualities. For instance, availability or lack of funds influences the relationship between the financial component and the materials and equipment component. The

state of availability of funds means that there will be adequate, inadequate or total lack of supply of materials and other resources. Education, therefore, qualifies to be called a system. Identification of a system according to Katz and Kahn (1966) is based on two criteria - first by identifying and mapping out the repeated cycle of input, transformation and output; second, by ascertaining how the output reactivates the system's pattern. This can easily be related to education as all the inputs (learners, materials, teachers' skills etc.) are transformed through instruction to give an output (more knowledge able learners). The output, which is more knowledge/information is used to improve the system, graduates are deployed to teach in the system or contribute financially to the sustenance of the system.

Banathy (1968) identifies a system through the revelation of its specific purpose, as the purpose determines the process that in turn determines the components. Education has its general aims drawn from a philosophy of education. These aims describe the purpose that education as a system should serve. Then as Briggs (1977) states, an integrated plan of operation of all components to meet the purpose can be designed.

Further, scholars (Banathy, 1968; Briggs, 1977; Midgley, 2001; Jantsch, 2005; Gray, 2006) have identified some properties of open systems, a category to which education belongs. These include:

1. The importation of energy from the environment. Education receives its purpose, pupils, personnel and material resources from society.
2. The through-put or process/transformation of the input into some product, or output (developed knowledge or an educated person).
3. The exportation of that product into the environment in form of skilled manpower and knowledge generated through research.
4. Feedback from the environment on the output, through evaluations and criticism for purposes of adjustment and correction of any malfunctioning.
5. Entropy to ensure a system survives and maintains itself in an environment (review of the curriculum to have market driven and relevant curriculum).
5. Homeostasis to sustain a steady state even in growth especially resulting from changing needs of society or constraints imposed on it by society.
6. Differentiation and elaboration involving coordinated specialization resulting from special functions and interaction among components and the system.
7. Integration and coordination through shared values, purposes, priority setting and sequencing and
8. Equifinality, which allows for different means to achieving a purpose.

Having defined and described a system and consequently identifying education as a system, a brief over-view of the Kenyan situation is given in the next section with a

view of making a decision on whether Kenya has a functional system of education or not.

Educational operations in Kenya

The aim of this section is to identify the component parts of education in Kenya and highlight their roles and relationships with a view of determining their functions or dysfunctions as parts of a whole. Education in Kenya is governed by the Education Act under which special bodies or organizations have been set up to facilitate its smooth running. There are several ministries that are concerned with education in Kenya. These are the Ministry of Higher Education, Science and Technology mandated to oversee education in tertiary colleges and universities, the Ministry of Sports and Youth Affairs that handles youth and village polytechnics, and the Ministry of education overseeing primary and secondary education. This paper focuses more on the Ministry of Education which has its offices and branches at national, provincial, district and divisional levels. All the policies affecting education are formulated and channelled through the Ministry down to the schools for implementation. It is at the national level where the six national goals of education are determined. These goals spell out the purposes education is to serve. Under the ministry, there are several component parts which are set up to play specific roles in achievement of the purposes of education. These are examined below.

The quality assurance and standards department

The Quality Assurance and Standards (QAS), formerly known as the inspectorate, arm of the ministry of education is meant to play a supervisory and advisory role. Specifically, the QAS department checks on the quality of implementation of educational policies at all levels. This covers quality of instruction, materials, equipment and facilities and quality of training. For a long time, however, it has been noted that those appointed to these roles were not qualified and didn't know their roles due to lack of guidelines (Maranga, 1977). The QAS officers were seen as "snooper visitors", people (officers) who pounce on prey (teachers) with an intent to "catch" and punish wrong doers. For a long time, to date, they are unwelcome visitors to schools. In most cases during their visits, they focused on facilities, especially buildings at the expense of the curriculum and skills of teachers during instruction. This reflects poorly on the relationship of this quality assurance component and other components, as regards achievement of the aims of education. With poor monitoring, chances are that every other component could be dysfunctional with nothing done to correct this state. Problems affecting the 'system' could go undetected.

The Kenya institute of education (KIE)

This is the curriculum development arm of the Ministry of Education. The K.I.E has sub-components, or units that have specific functions: The curriculum development unit, the monitoring and evaluation unit and the materials' development unit. The Kenya Institute of education is responsible for the interpretation and operationalisations of policies through statements of goals and aims of education, goals of each subject or course and development of syllabi to guide teachers in implementation. Course content and materials are developed here. K.I.E is mandated to monitor and evaluate programs developed and that are in use to check on their acceptability and relevance to the needs of society and to the aims of education. Most of the activities are however, stunted because of lack of funds to enable them to perform their roles effectively. As a result, there is very little professional review of the curriculum and materials. This then perpetrates the practice of schools using outdated and even obsolete information.

The school equipment production unit (SEPU)

The School Equipment Production Unit (SEPU) was formerly called Kenya School Equipment Scheme. This component of the Ministry was set up during the post independence years to be responsible for the supply of books and other equipment such as rulers, chalk, charts to all school. It was very functional up to the late 1970's. Materials developed by K.I.E and produced by the Kenya Literature Bureau, Jomo Kenyatta Foundation, The Kenya Science Equipment Scheme were distributed by the Kenya School Equipment Scheme. This was possible as the state financed the production and supply of materials. Currently, the state has withdrawn much of its support due to structural adjustment programs and introduction of cost sharing with stakeholders, leaving parents and individual schools to provide for themselves. This kind of situation automatically reduced the impact of SEPU or rendered this component functionless.

The Kenya national examinations council

This is the national examining body charged with the responsibility of developing examinations, examining students and certifying them on completion of their courses. Subject panels are formed for every subject at every level to moderate these examinations. Teachers' representatives from different subjects and geographical regions are selected to accommodate differences among schools in different areas. However, at times examinations are set that require students to have certain facilities and equipment not available in schools, a problem arising from lack of provision. Examinations are marked by teachers who

are trained for the exercise, which links examinations to instruction.

The teacher training component

The ministry of Higher Education, Science and Technology has established teacher training colleges, universities and other special institutions to prepare teachers for their roles. Each year there are more people getting trained to become teachers. However, there is very little being done to ensure that this training is tailored to meet the changing roles of the teacher and needs of the changing curriculum and trends in instruction. Teacher's Training Colleges for primary school teachers are still using the training manual that developed in 1996 (Abenga, 2005). The same applies to Technical Teachers Colleges. This is because there has been no review of materials even with the changes that came with the 8-4-4 'structure' of education. Only new subjects had material developed, but their effect on the already existing ones were ignored. Traditional methods of training and teaching persist regardless of the demand for change posed by technological developments (Rono, 2002).

Teachers service commission

This is the body responsible for appointment, deployment, demotion, transfer and remuneration of teachers in Kenyan public schools. Currently there is inadequate staffing in most rural schools. Enrolments have sky rocketed owing to free and compulsory primary education as well as free secondary education. This growth in enrolment has not been matched by equal growth in teacher employment. Due to the increase in the cost of education on the part of the state in the face of diminishing external funding, many structural adjustment programs had to be instituted. Among them was the freezing of employment of teachers by the government. In spite of this, more teachers were being trained yet not fed back into the system that in reality needs them. The policy of cost sharing was also introduced that transferred cost to the parents. This policy and the structural adjustment programs are responsible for poor quality of education (Rono, 2002).

Governing bodies

Public schools are governed by various bodies that are formed at the local levels such as the Boards of Governors, Parents Teachers Association, District Education Boards, which have various roles such as management, decision making on matters such as employment of workers and teachers, acquisition of materials, equipment and other facilities and much more.

Though these bodies are meant to operate in a manner that national aims of education are achieved at the grass roots, at times they provide a source of duplication of responsibilities and misinterpretation of policy. For instance, personnel who are employed by these governing bodies are usually unskilled, untrained and therefore underpaid. The quality of service is therefore, poor yet Teachers' Service Commission and Quality Assurance and Standards departments cannot do anything about this because they are recognized bodies that have been mandated to step in and do what the government has been unable to do.

Financing of education

Finance is the nerve centre of all systems. No component of any system can be functional without finances. All the components highlighted in this paper need finances for them to perform. Currently in Kenya, the government supports education by financing the teachers' service commission by providing salaries of teachers and salaries of all personnel in the other sectors such as quality assurance, colleges, Kenya Institute of Education and Kenya National Examination Council. However, grants to support the daily operations of schools and other educational institutions are no longer forthcoming. In schools, parents provide land, buildings, books, materials, equipment and salaries of non teaching staff. K.N.E.C charges examination fees to meet its running costs, while, K.I.E and the QAS solicit for funds from donors and well wishers to support proposed projects as well as make money from income generating units. All the components find themselves incapacitated by this financial handicap. Therefore, to a large extent, non-functional.

In view of the situation highlighted, it can be concluded that in Kenya though education serves a purpose and it is being provided somehow, there are components set up to make achievement of these aims a reality. However, the relationship between these components and their functions is either strained by lack of funds, lack of clear policy or guidelines and lack of relevant skill, or the relationships are not complementary. Each component seems to be striving to achieve its immediate goal, its own survival at the expense of the main goal. The dynamic interaction of functional systems makes the system maintain itself. This lacking, poses a threat to the existence of the system. Using the systems thought it can be concluded that Kenya lacks a fully functional system of education.

The impact of absence of a functional system of education on development of media programs for schools in Kenya

This section defines media programs and describes the

development of media programs. A summary of what is essential for effective media program development is given. Based on this, the impact of lack of a functional system of education on media program development is discussed, with special focus on the Kenyan setting.

Media programs and their development

Educational media programs are systems established to bring about the full impact of technological development to bear upon the improvement in the quality and quantity of instruction needed by society (Erickson, 1968). Technological development here encompasses the instructional techniques, hardware and software. The National Manual for Educational Technology (1969) views technology as encompassing tools such as:

- i) Audio-visual media, computers, etc;
- ii) Techniques such as programmed instruction, simulation fieldtrips etc and
- iii) Processes such as systematically designed instruction.

The tools, techniques and processes classified in educational technology literature as hard and soft technologies are developed and applied to improve the process of learning. Development of educational media programs therefore refers to the planning for, identification, selection, collection/production, adoption, management and use of the media programs, with the aim of improving the quality and quantity of instruction needed by society.

Erickson's (1968) definition sees media programs as systems, which indeed they are. However, since their purpose is to improve the quality and quantity of instruction, this paper treats media programs as a subsystem like training of teachers and others. They are sub-systems in a macro-system which is Education. Educational media programs as a sub-system of the main educational system cannot function effectively without positive interaction with other components. Essential components of media program development are identified to include personnel, training, financing, facilities and resources, maintenance, evaluation and monitoring. These components of media program development find a place in one of the subsystems of Kenyan education 'system' identified and discussed in the first part of the paper. For instance, provision of personnel to implement and manage the media programs would be the responsibility of the Teachers' Service Commission or the governing bodies while evaluation is a shared responsibility of the Kenya National Examinations Council and the Kenya Institute of Education. The relationship between the sub-systems' under which the media programs and other educational programs would be developed, has been found unsatisfactory to the extent that this paper concludes that no functional system exists. The implica-

tions of this to the development of media programs in Kenya are discussed next.

Implications for media program development

Lack of shared purpose happens when sub-systems do not function in a complementary manner to each other and they cannot serve to achieve a common purpose. Each sub-system or component will either be focusing on its own goal which might be different from the main goal, or some component will have ceased to function. These components then exist and function as wholes (different entities) not parts of a whole. The impact of such a situation is that these components stop being interrelated in policy. In practice, changes made in one component of a system usually affect all the other components. However, in our current situation we have changes introduced in the curriculum but production of materials, teacher training and evaluation remain unadjusted. A point in case was the introduction of integrated courses that required English language and literature to be integrated. Teachers are still trained to teach them as separate subjects and in separate lessons (Bosire, 1996). Subject/lesson allocation in school timetables in practice facilitate the disintegration of the two units, examinations still set test items that separate literature from language, most course books and materials produce still separate the two parts. This kind of situation is not favorable for media program development requires all components functioning in support of each other. If a teacher is not trained on use of a particular media program then it will not be used or will be misused. Materials and resources must also be produced to match the goals and objectives of the program and of education as a whole, while evaluation should also be centered on and relevant to objectives, goals, materials and methods used. Lack of a functional system is characterized by lack of clear policy governing all the components and by lack of co-ordination of these components. Such a condition implies that each component does not have clear guidelines on their roles, responsibilities, functions and boundaries and on their relationship with each other and with the environment. Evidence of this is duplication of roles and responsibilities as well as omission in mandating a specific body with roles. For long the school inspectors, now known as quality assurance officers and teacher advisory tutors did not understand their roles (Maranga, 1974). Currently, governing bodies and ministerial appointed bodies serve same purposes such as employment of staff. Media program development needs services of well guided advisors and supervisors. There has to be guidance on what media programs are available and relevant to aims of education, guidelines on how to identify and select, or acquire use and maintain them. It must be made clear whose responsibility it is to maintain and service equipment. Without such guidelines either there is duplication

of roles on non-performance. Both of these are a threat to the existence of a system and functioning of a program.

Training of personnel

Media program development is incomplete without having adequate supply of appropriately trained people to run the program. Teacher training is meant to respond to the requirements of the curriculum and media program packages that are to be implemented in schools. Management at training institutions should also be responsive to the demands of media program management at all levels. Support personnel should also get specific skills to make them operate as technical assistants. Teacher training colleges, Universities and Kenya Institute of Administration provide training that is not responsive or relevant to the requirements of the current educational media program needs. Changes made by K.I.E on the curriculum seem to be ignored by training providers thus making their contribution to media program development irrelevant and negative. Teachers are unable to use the modern educational technologies because training is traditional (Abenga, 2005).

Provision / haphazard acquisition of media program resources

Lack of a system of education gives rise to a situation where every school and every teacher takes it upon themselves to acquire resources, either equipment and materials by their own means. This creates lack of uniformity on the types quality and quantity of resources each school acquires. In the absence of state provision or financing of media programs and with lack of clear policy regarding media programs, schools depend on parents, donors, politicians and other well-wishers for provision. This creates an avenue for resources of all kinds and all standards to get into schools. Some equipment that gets to schools from these sources is obsolete, substandard or unusable in the school environments. These equipment require special skill which is not available some are not serviceable or are expensive to maintain and irrelevant to the needs of the curriculum. Haphazard acquisition of media program resources leads to lack of uniformity in schools. Some media end up being status symbols for schools and yet they contribute nothing to achievement of the aims of education. The sourcing of media equipment and materials need the direction of an educational media specialist to maintain standards or meet technical specifications to ensure coherence of materials with instructional objectives, and compatibility with existing structures and systems.

The physical environment

With the physical environment for media utilization vary-

ing due to lack of standards or specifications to guide school managers and the lack of a mandated system to enforce those standards, creates a wide avenue for lack of uniformity. Schools vary in the kind of infrastructure available that can facilitate use of media program materials. Electricity, security, permanent buildings, space for use and for expansion, telephone lines, road network and other facilities are developed to varying degrees within and between regions and schools. Lack of these poses a great deterrent to development of media programs in a majority of schools. In Kenya, some schools are registered and begin operating without adequate buildings, space and all necessary infrastructure that encourages the development and use of media. Allowing this to happen is one way of discouraging the misguided consideration of media as an appendage to instruction that can be done without.

Distribution and maintenance

With lack of clear policy and state financial support for media programs distribution and maintenance of media program materials can only be discussed at district and school levels. At the district level, there are District Education Boards which are members of the District Development committees. These Boards may contribute positively not only in the provision but also in the distribution and maintenance of media program resources. However, owing to the limited professionalism of its members, this area of media is hardly ever a priority. In most cases politics interferes with professional advice.

At the school level, distribution and maintenance of media resources depends on the management of that school, their views regarding media and teacher-administrator relationship. Media materials accessibility, acquisition procedures, servicing and maintenance procedures are hardly ever in place. Favoritisms reigns as certain subjects and teachers receive more attention than others.

In a setting such as the one described above, media program use is made tedious and burdensome while whatever media resources that are available also get vandalized and looted. Due to lack of regular stock taking and proper handing over taking over that is characteristic practice in situations that lack a functional system, maintenance of media program materials becomes difficult. This also reveals a negative attitude among teachers and administrators towards media programs. This does not augur well for media program development.

Evaluation

Media program development requires initial and on going evaluation and monitoring. Points for observation and analysis include adequacy of leadership, availability of materials, accessibility and convenience for use, growth

and expansion, in-service education, records keeping, realization of program goals, environment for media programs, user attitudes, relevance to goals and needs of users and much more.

Absence of a functional system of education means that the monitoring and evaluation bodies work in isolation of other components. Meaningful and useful evaluation will not be expected to occur. In Kenya, Monitoring and evaluation is shared responsibility of the QAS, K.I. E., K.N.E.C and organizations that sponsor projects. Since everyone's responsibility is no ones responsibility, the effectiveness of the evaluations, if any, is questionable. Where it does, results are not put to use owing to lack of functional system. For this reason, schools continue using technologies and materials which are obsolete, irrelevant to goals of education, instruction and to the needs of the learners. As leadership and other personnel remains inadequate and non-supportive of media programs, attitudes remain unchanged since no effort is made in this direction, in-service education for media programs persist.

Conclusion

From the foregoing it can be concluded that in the absence of a system of education, media program development becomes very difficult and an unachievable aim. Lack of a system of education allows for educational practices to go on without clear policy to guide and control all activities. It also allows for duplication of functions which causes a lot of confusion lack of direction and lack of standards which make meaningful media program development impossible. Systems thought allows for differentiation and specialization of roles with unification, co-ordination control for purposes of effectiveness and efficiency of that system. Kenya has established specialized units but there is lack of proper unification and coordination of their activities. Media program development cannot thrive in such setting. The only way forward is suggested below.

Recommendations

There must be a clear government policy regarding educational media programs in Kenya. This will go a long way in providing guidelines to all stakeholders and interest groups. The policy should be particularly clear on the financing provision maintenance and management of media programs for Kenyan schools.

State responsibility for the provision of education to its citizens goes along with responsibility for financially supporting and directing media programs in Kenya. This is the only way to ensure uniform implementation of policy and equity in distribution of media resources. Government financial support of media programs should go as far as financing of in-service training programs for the media

programs personnel.

This paper recommends an integration of media program development into the curriculum development process. This will go along way in changing the current view of media as an extra that is occasionally added on to instruction. The curriculum development unit should work with the educational Media services and the examinations council and other units and not independently. As Tucker (1986) puts it, it is difficult to envisage successful integration where designers and producers are not co-operating from the earliest stages of the design process.

The same applies to all other components of the system, evaluation, researchers, trainers, distributors, managers etc. The importance of educational media to the teaching and learning process cannot be realized in full without this integration.

Development of media programs in Kenya should have a balance of professionals and media experts at all levels so that their identification, selection, storage adaptation and use is of value and relevant to educational needs and the needs of learners from all kinds of environments in Kenyan schools. Teachers and media specialist participation are crucial. Curriculum design teams should have a balance of expertise to include educational technologists, media specialists, subject specialists, curriculum specialists and psychologists who should work together from the earliest stages of the process.

Functions of the various subsystems within education must be streamlined to allow for specialization and be well co-coordinated for efficiency and effectiveness. The Kenya National Examinations Council should adjust to changes in the curriculum to make sure evaluations are relevant and supportive of the kind of education the curriculum lays down. This will help the instruction in schools to stop being examination oriented at the expense of real learning and of media use. Teacher training programs should also co-ordinate with K.I.E. and K.N.E.C. to provide relevant training. The right personnel must be deployed by teachers' service commission to make sure there are qualified heads, teachers, trainers, inspectors and other officers. This co-ordination will go along way in having a working system of education.

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