

The infrastructural supply and demand of the 26333 system of education: A cursory look on the “Junior” and “Senior” secondary school in Keiyo South

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Abstract

The junior and senior secondary schools represent one important facet in the 26333 curriculum. They will expose the learner to a broad based curriculum to enable them to explore their own abilities, personality and potential as a basis for choosing subjects according to career paths of interest. Of key interest in this paper is the core subject; Sports and Physical Education and optional subjects; Visual Arts, Performing Arts, Home Science, Computer Science and Foreign Languages in which learners are provided with an opportunity to choose according to abilities, interests and career choices. Hitherto the new curriculum, various challenges pose a profound threat to the 26333 education system. Key among them is the infrastructure of schools that is not well established in the secondary schools that will be essential in identification of talent among learners through the subjects mentioned. This implies that some students will miss out on their career progression due to low quality services unless necessary interventions are made. This paper therefore set out to examine whether the school infrastructural system supports development of students varied abilities and to make recommendations on appropriate ways of developing various students' abilities. Survey research design was used. The stratified and proportionate sampling was used to select 14 schools. Respondents included 14 head teachers. Interview schedules, library methods and observation schedules were used to get information. The findings established that the schools had inadequate infrastructure. It is recommended that, school administration should strive to partner with different stakeholders to develop infrastructure to enhance students' participation.

Keywords: Secondary schools; Infrastructure; 26333 Education System; Junior

1. Introduction

The moribund 8-4-4 Education System in Kenya was introduced by the then President of Kenya Daniel Toroitich Arap Moi with the purpose of equipping our students with hands-on-skills to become job creators and not job seekers (Kiminza, 2015). This saw subjects like Art and Craft, Music, Home Science and Agriculture get introduced in the syllabus. This was to mould the citizenry for the Jua Kali industries that were seen as the drivers of emerging economies such as China. Several years down the line, Education advisers, in their own intelligence, postulate that the 8-4-4 education system is over-burdening the school going child. These challenges in 8-4-4 Education System in Kenya reawakened the education experts who in between 2011 and 2012 came up with the proposed 2-6-6-3 Education System in Kenya with a view to seal the loop-holes of the 8-4-4 system and also align the Education Sector in Kenya to International Standards (Oketch & Ngware, 2010).

The 2-6-6-3 Education System in Kenya postulates to accommodate other disciplines such as technical work, self-employment and wealth creation. If well strategized and implemented, Kenyan students will gain more from it but if the system is just overhauled for the sake of it, without proper structure and planning, then we will still be singing to the

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same song, only to a different tune (Kenya Institute of Curriculum Development, 2017). In the advent of the 2-6-6-3 Education System in Kenya, several problems have surfaced that might erode the gains that the 2-6-6-3 Education System in Kenya is expected to bring. Although anything that is starting is always faced with challenges, the problems of 2-6-6-3 Education System in Kenya will be a continuation of the problems that the moribund 8-4-4 system crumbled under. Pundits have postulated that one of the problems of 2-6-6-3 Education System in Kenya is the limited resources available to fund this cash and resource intensive venture (Muiruri, 2012).

The 2-6-6-3 Education System in Kenya is a facilities intensive venture and therefore stakeholders and the government needs to align itself to meet the demands that come with the proposed curriculum such as establishing new polytechnics, professional colleges and sports academies. Curriculum developers point out that, no curriculum can be effectively implemented in the absence of adequate teaching and learning resources. Consequently, resources must be made available. In Malta, the Ministry of Education and Employment (2012) stresses that; there is no sense in having a demanding curriculum without the necessary resources both human and physical. This view was accentuated by Kamunge (1988) who stated that, the provision of quality and relevant education and training are dependent on among other things the supply of adequate equipment and teaching materials.

In light of this, schools and government have the responsibility of supplying equipment for various activities to ensure that all students are fully occupied. Ongus (2003) observes that, the school administration has the role of providing facilities and equipments. The question that begs answers is therefore, whether these resources have been provided and if they have been provided, are they sufficient to cater for the students varied abilities and potential both in and out of class?

Department of Education (2014) in America further assert that, by ensuring that resources are acquired and located in a manner consistent with goals, needs, priorities, policies and plans, a well coordinated team can, in many cases lead to better use of individual skills and more effective implementation of resources. This highlights the important role that infrastructural facilities have on the development and performance of students' abilities, interests and potential. It is therefore important that, the school administration organizes in time and provides all teachers and students with resources to enable them to effectively work in the school environment thus development of talents. Chepkiror, Tonui, Chepsiror and Too (2014) all agree that, more attention is required to the provision of adequate facilities and resources, and opportunities for teachers to share ideas on the use of available, accessible and appropriate resources in the solution of educational problems.

However, the availability and maintenance of these resources are non-existent or lacking. In her studies, Daudi (2003) noted that, head teachers who were interviewed on whether they had always provided resource materials, 80% responded in the negative, an indication that school administration which is in charge of administrative activities found it difficult to supply the materials. Further, general observation made on the resources indicated that, in most schools these were poorly managed. Daudi noted that, most playgrounds were non-existent. Daudi study is supported by United Educational Scientific and Cultural Organization (2016) global education monitoring report on the availability of resources and facilities in schools in developing countries. The report conducted in developing countries revealed that, schools lacked textbooks, teaching aids and other equipment in adequate quantities. This therefore implies that if necessary measures are not taken to improve infrastructure the 2-6-6-3 may not be actualized.

The negative impact of inadequate facilities is enormous. Kenya Institute of Curriculum Development (KICD) has noted with concern that, when there are limited resource and learners shares the few available the slow learners fail to acquire the related skills fast as the faster ones. In addition to this, Orunaboka and Nwachukwu (2012) noted that, schools with superior facilities, equipment and supplies and innovative materials should be more successful than schools that are physically antiquated or dilapidated. Louis, Leithwood, Wahlstrom and Anderson (2010) further observes that, the service delivery for students with inept academic and non-academic abilities need to have sufficient facilities and resources. Lack of adequate facilities and or delay in sourcing and delivery of these equipments may stifle advancement of learners with outstanding abilities and capacities.

There is an indication from literature that, a range of facilities for multidimensional nature of activities related to the proposed curriculum is required in schools. Howe (2000) notes that, greater availability of text books, reading materials and other facilities are required to raise the quality of learning activities amongst talented students. The major purpose of the present research was to establish the availability of these resources especially facilities related to sports, drama, music and visual arts; thus, the importance of these resources cannot be underestimated.

In adding to the list of facilities and their importance in the development of the new curriculum, Daudi (2003) says that, most programmes of instruction and pupil service require some physical facilities including schools buildings, playgrounds and equipments.

Literature raises important issue that certain infrastructural conditions need to be put in place for students to achieve their full potential in the new curriculum. To fully understand the background of the problem, the Kenya's secondary school was also looked at because the Kenya's secondary school is relevant for the development and implementation of the 26333 system of education.

A discrepancy exists in relations to the provision of infrastructure and the anticipated development of students' abilities, personalities in the proposed system of education. These abilities are manifested in student's participation in Sports and Physical Education, Visual Arts, Performing Arts, Home Science subjects, Computer Science and Foreign Language. It is against this background that the purpose of the study was to investigate the infrastructural supply and demand of the 26333 system of education by reflecting on the "Junior" and "Senior" Secondary School in Keiyo South

Objectives of the study

The study had the following objectives:

- To examine the school infrastructural supply that supports development of students' abilities, personality and potential.
- To explore the school infrastructural demand of the 26333 system of education that supports development of students' abilities, personality and potential.

2. Material and methods

Descriptive survey design was used in this study. The study population comprised of all the 32 secondary schools in Keiyo Sub County. A sample of 14 (44%) schools of the total number of schools was considered based on Kothari (1995) recommendation that the sample should be 30% of the whole population or more using stratified sampling. Secondary schools were grouped either as Extra County or County then proportionate sampling was used to select 3 Extra County schools and 11 County schools. Stratified random sampling was opted for because it has an advantage of built in assurance that the sample will accurately reflect the numerical composition of the various sub groups (Cozby, 2003). 14 head teachers were purposively sampled.

Through the Interview schedules, secondary data collection and observation schedules the study sought to examine the school infrastructural supply that supports development of students' abilities, interests and potential and to explore the school infrastructural demand of the 26333 system of education that supports development of students' abilities, interest and potential. Data was analyzed quantitatively and qualitatively after it was collected, examined for completeness, cleaned and then coded appropriately.

3. Results and discussion

3.1. School Physical Facilities Supply

The observation schedule sought to examine the school infrastructural supply that supports development of students' abilities. The responses are indicated in Table 1.

In the recorded schedule (Table 1) it was observed that, most of the fields and courts were inadequate, out of the 14 schools observed, 7 schools had football pitches, 7 had handball pitches, 3 had hockey, 2 had rugby pitches, 6 had athletic tracks, 6 had basketball courts, 6 had badminton and 4 schools had lawn tennis court. Performance halls were also inadequate; out of the 14 schools observed, 5 schools had drama halls, 2 had art room, 3 had Home Science rooms 4 had Music room and 4 had computer labs.

Other than volleyball, all the observed schools at least lacked fields and courts for the various out of class activities and performance halls that enhance drama and music. From the observation schedule; it can be revealed that, physical resources meant to develop students' abilities in the proposed 2663 system of education are either inadequate or lacking. Such facilities provides enormous boost in training and equipping students with skills necessary for the thriving of students' abilities. Therefore their absence implies that, many students may act below their ability. The study results give credence to Koech (1999) assertion that, facilities are necessary to develop students abilities and that schools have

the responsibility of providing the facilities. Louis, Leithwood, Wahlstrom and Anderson (2010) further notes that, service delivery for students with inept academic and non-academic abilities need to have sufficient facilities and resources. They argue that, lack of adequate facilities stifle advancement of learners with outstanding abilities and capacity.

Table 1 Distribution of School Physical Resources

Category	Availability						
	Physical resources	Adequate		Inadequate		Not available	
		Freq	%	Freq	%	Freq	%
Fields and courts	Football pitches	5	35.7	7	50	2	14.3
	Volleyball pitches	8	57.2	6	42.8	-	-
	Netball pitches	7	50	5	35.7	2	14.3
	Handball pitches	1	7.14	7	50	6	42.9
	Hockey pitches	-	-	3	50	11	78.6
	Rugby pitches	-	-	2	14.3	12	85.7
	Athletic pitches	2	14.3	6	42.9	6	42.9
	Basketball court	-	-	6	42.9	8	57.1
	Badminton	1	7.14	6	42.9	7	50
	Lawn tennis	-	-	4	28.6	10	71.4
	Swimming pool	-	-	-	-	14	100
Halls/ Rooms/ Labs	Drama halls/theatre	1	7.14	5	35.7	8	57.1
	Art rooms	-	-	2	14.3	12	85.7
	Home science room	-	-	3	21.4	11	78.6
	Music room	-	-	4	28.6	10	71.4
	Computer labs	-	-	4	28.6	10	71.4

3.2. Availability of Equipments and Accessories

Table 2 Schools Equipments and Accessories

Equipment for M.I.	AVAILABILITY					
	Adequate		Inadequate		Not available	
	Freq	%	Freq	%	Freq	%
Balls	4	28.6	10	71.5	-	-
Uniforms	1	7.14	11	78.6	1	7.14
Boots/Rubbers	1	7.14	10	71.5	3	21.4
Athletics equipment	-	-	4	28.6	10	71.4
Drama Costumes	3	-	4	28.6	7	50
Music Costumes, drums, Instruments	2	21.4	5	35.7	7	50
Home science apparatus	-	-	1	7.14	12	85.7
Art and Design equipment	1	7.14	2	14.3	12	85.7
Print materials –textbook, magazines	-	-	3	21.4	11	78.6
Electronic materials, DVD, Cassettes	-	-	3	21.4	11	78.6

The observation schedule examined the availability of equipments and accessories essential for the development of students' abilities. In the recorded schedule (Table 2) it was observed that, out of the 14 schools observed 1 school didn't have uniforms, 3 schools didn't have boots, 10 athletics equipment, 7 drama costumes, 7 music costumes, 12 did not have Home Science apparatus, 12 Art and Design equipment, 11 print materials and 11 schools did not have electronic materials. The "inadequate" column recorded high occurrences of limited availability. From the observation it can be argued that, physical equipment that facilitate development of students abilities were either lacking or inadequate, in essence this lowers participation of would be talented students.

Nguru (2007) agrees to these findings, noting that, when school equipments are delayed teachers cannot do their work properly.

3.3. Maintenance Level of the Physical Resources and Facilities

Other than just providing for equipments and facilities, literature revealed that it was important to maintain them. Head teachers were therefore interviewed on the maintenance level of the physical resources and equipments in their schools. One of the Principal had this to say;

I want to admit that our physical resources and equipments are not good. Due to limited resources we are unable to maintain our fields and pitches on a regular basis. Sometimes we have our livestock in the fields. Equipments are also not well maintained. If you go to the stores the likelihood of getting torn boots is high.

Another Principal said that

I may rate our maintenance levels at average. We do maintain on a regular basis our small pitches like volleyball and netball pitches. On the contrary though we have problems when it comes to bigger fields like football and hockey. This arises from relying on manual labour which is slow

Interviews indicate that schools sampled had poorly maintained physical resources. This implies that, most schools were not very keen in maintaining the resources to a high level of standards in order to develop students' abilities.

The second objective explored the school infrastructural demand of the 26333 system of education that supports development of students' abilities. Secondary data that was sourced through internet and the library indicated that in the 26333 Education System primary education will be split into two categories; Pre primary which will take two years and Primary education which will take six years. Students will advance to junior secondary school which will take three years and later proceed to senior secondary school which will take three years too. At the senior level they will spend another three years focusing on their areas of specialization depending on their abilities and interests (Wanzala, 2017).

The system (2-6-3-3 Education system) gives students in secondary school a chance to specialize in the subjects they wish to pursue in tertiary institutions and learning areas have been divided into three categories: arts and sports, social sciences and science and technology, engineering and mathematics. Under sports, students will pursue games, performing arts and visual arts while social science options will be languages and literature, humanities and business studies.

Nyakachunga (2016) further points that at junior secondary, a learner will be required to take the 12 core subjects — including English, Kiswahili, mathematics, integrated science, health education, pre-technical and pre-vocational education, social studies, religious education, business studies, agriculture, life skills education, sports and physical education. Learners will also be provided with an opportunity to select a minimum of one and a maximum of two optional subjects according to personalities, abilities, interests and career choices. The optional subjects are home science, computer science, performing arts, foreign languages, Kenya Sign Language, indigenous languages and visual arts.

Of key interest in this paper are the core subjects sports and physical education and the optional subjects mentioned. These subjects demands infrastructural development of fields, pitches, availability of equipments, accessories, theatre halls, home science labs and computer labs necessary for the development of students' abilities, interests and potential (DfID, 2010). It is important to note that most of the schools mapped to be junior secondary schools are lacking in terms of the infrastructural facilities required for students to pursue these subjects.

UNESCO (2016, p.1) in supporting this view highlights that “Education institutions and programmes should be adequately and equitably resourced, with safe, environment-friendly and easily accessible facilities; sufficient numbers of teachers and educators of quality using learner-centred,

In senior secondary, a student will take two core subjects irrespective of the pathway identified. They include community service learning (life skills, citizenship, entrepreneurship, financial literacy and research) and physical education. Senior secondary schools will be specialized institution offering one of the three available pathways (Arts and sports science, social sciences or science technical engineering and mathematics- stem). The arts and sport science will indeed demand heavy investments in infrastructure. This is not to mean that the other pathways will not require the same attention.

4. Conclusion

The research study led to the conclusion that resources aimed at creating the context for enhancing students’ abilities, interests and potential such as well-equipped music rooms, arts room, pitches/courts and performance halls are lacking in most secondary schools that are designated to be junior and senior secondary schools. Therefore, students who are talented in the various abilities may not have a chance to develop their abilities, interests and potential in schools.

- For the integration of ICTs in teaching and learning to be successful the tools and resources of the internet, internet of things, multimedia, and related technologies, there is need to utilize ICT as integrally connected with literacy learning in the wider sense of learning as a matter of accessing information, communicating, and applying knowledge.

Policy implication

The Government through relevant ministry should prioritize developing infrastructural conditions that are supportive to the development of the students’ abilities, interests and potential in the proposed education system. This will ensure that students grow musically, technologically and socially. Construction of extra facilities like sports academies, polytechnics, studios and workshops and provision of amenities like classrooms, laboratories and books at primary and secondary schools that are currently insufficient and which contributed to the 8-4-4’s perceived failures should be stepped up. Upgrading all schools with Information Communication and Technology equipments is critical in meeting the demands of the new education system.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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