



The position of agriculture in the Competency-Based Curriculum (CBC) in Kenya: implications for Agricultural Technical, Vocational Education and Training (ATVET): A review

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Abstract: This study was set out to determine the position that agriculture holds in the new CBC, focusing on available literature in Kenya. Various literatures were reviewed focusing on the understanding of the CBC in the Kenyan context, understanding of the ATVET in Kenya and the position of agriculture in the CBC. The review found out three key implications: that agriculture as a subject has been revamped in the CBC, specialization in agriculture has been introduced at early stages, and that there might be inadequacy of agriculture teachers with the coming of grade 7 in 2023, hence the government to rethink its strategy of training, recruiting and placing agriculture teachers.

Key Words: Agriculture, Competency Based training, Curriculum.

1. INTRODUCTION:

Understanding the Competence Based Curriculum (CBC) In Kenya

The republic of Kenya has been dispensing the 8-4-4 (8 years in primary, 4 years in secondary and 4 years in university) system of education. The Competency Based Curriculum (CBC) is gradually replacing this since the year 2017 (Amutabi, 2021). The new Kenya Basic Education Curriculum Framework is the outcome of extensive stakeholder engagement, a needs assessment study, and discussions emanating from a national curricula reform conference and workshops as well as numerous benchmarking. This framework is based on educational components of the Kenya Vision 2030 on the provision of high standard trained skills for the job market (Mburu, 2012). Through this, the government aims at setting a niche of education focusing more on science and technology-based programs. These programs are key in the view that they are able to cope with technological transformations consequently providing job opportunities at the globally competitive job market.

Through the vision also, the state also aims to make science and technology an integral part of all school trainings in Kenya. The framework has been crafted to realize the new reforms in Kenyan Education system, as the country comes to terms with the new education system. The structure is as follows: 2 years of pre-primary, 3 years of lower primary, 3 years of upper primary, 3 years of lower secondary, 3 years of senior secondary and 3 years of tertiary education. The pre-primary education comprises 2 years i.e., pre-primary 1 and pre-primary 2 for children in the age category 4-5 years. In this category, the subjects on offer include Language Activities, Mathematical Activities, Environmental Activities, Psychomotor and Creative Activities as well as Religious Education Activities. Digital literacy is applied in the teaching and learning of all these subjects (Republic of Kenya, 2017a). The next level is the Lower Primary Education, which takes 3 years, covering grades 1, 2 and 3. The age-group of learners at this level is projected to be between 6-8 years. The Subjects in lower primary include Literacy, Kiswahili Language Activities/Kenya Sign Language for learners who are deaf, English Language Activities, Indigenous Language Activities, Mathematical Activities, Environmental Activities, Hygiene and Nutrition Activities, Religious Education Activities, Movement and Creative Activities. As applied in pre-primary level, ICT is a learning tool in all subject areas. At this level, both formative and summative assessment assessments are done. The teachers at the school level do formative assessment whereas the summative/national assessment is done at the end of grade 3 (Republic of Kenya, 2017a).



At the upper primary level (grades 4-6), learners are normally of age 9-11 years. Subjects of study at this level of learning are English, Kiswahili or Kenya Sign Language (for the deaf), Home Science, Agriculture, Science and Technology, Mathematics, Religious Education (CRE/IRE/HRE), Creative Arts, Physical and Health Education as well as Social Studies. Additionally, Arabic, French, German, Mandarin (foreign languages) are taught as optional subjects. As stressed at the previous levels, ICT is incorporated in all the subjects being taught. Pertinent and contemporary issues together with life skills are be mainstreamed in all subjects. A pastoral program of instruction is being done once a week. Formative and national assessments are done equally to assess learning outcomes. At the Lower secondary (grades 7-9), the ages of learners are 12-14 years of age. At this level, the subjects are in two categories: core subjects and optional subjects. The core subjects are 12 including English, Kiswahili or Kenyan Sign Language for learners who are deaf, Mathematics, Integrated Science, Health Education, Pre-Technical and Pre-Career Education, Social Studies, Religious Education, Business Studies, Agriculture, Life Skills Education as well as Sports and Physical Education. The non-compulsory subjects from which learners will choose at least one include Visual Arts, Performing Arts, Home Science, Computer Science, Foreign Languages (German, French, Mandarin and Arabic), Kenyan Sign Language and Indigenous Languages. ICT as earlier incorporated, will be a tool to deliver all the Subjects. The upper level of secondary school incorporates grades 10-12 for the ages 15-17 years. At this level, learners are free to take any of the three pathways, namely Arts and Sports Science, Social Sciences, and Science, Technology, Engineering and Mathematics (STEM). However, learners in all pathways must take the core subjects namely: Community Service Learning and Physical Education. The Arts and Sports Science Pathway prepares learners in arts as well as sports sciences. In the arts, the core subjects are Legal and Ethical issues in Arts as well as Communication Skills. The optional subjects (learner to choose any one) are Performing Arts (Music, Dance or Theatre and Elocution), Visual and Applied Arts (Fine Art, Applied Art, Time Based Media and Crafts). In the Sports Science category, core subjects are Human Physiology, Anatomy and Nutrition as well as Sports Ethics. The noncompulsory ones (learners to choose between one and two) include Ball Games, Athletics, Indoor Games, Gymnastics, Water Sports, Boxing, Martial Arts, Outdoor Pursuits, and Advanced Physical Education. The Social Sciences Pathway incorporates subjects in Humanities (History and Citizenship, Geography, Christian Religious Education, Islamic Religious Education, Hindu Religious Education, Business Studies and Mathematics) and Languages (English Language, Literature in English, Lugha ya Kiswahili, Fasihi ya Kiswahili, Kenyan Sign Language, Indigenous Languages, Arabic, French, German and Mandarin). The Science, Technology, Engineering and Mathematics pathway contains Pure Sciences with core subjects being Community Service Learning, Physical Education and ICT, which also apply in other areas. The optional one from which the learner will select a minimum of three are Mathematics, Physics, Chemistry and Biology. In Applied Sciences, the optional subjects are Agriculture, Computer Science, Foods and Nutrition as well as Home Management. In the Technical and Engineering area, students can specialize in one of the following subjects with Community Service Learning, Physical Education, ICT, Mathematics, Physics/Physical Sciences, Chemistry Biology/Biological Sciences being core: Agricultural Technology, Geosciences Technology, Marine and Fisheries Technology, Aviation Technology, Wood Technology, Electrical Technology, Metal Technology, Power Mechanics, Clothing Technology, Construction Technology, Media Technology, Electronics Technology, Manufacturing Technology, as well as Mechatronics. In Career and Technology Studies (CTS), the core subjects are Community Service Learning, Physical Education and ICT. The learner shall additionally choose one of the following: Garment Making and Interior Design, Leather Work, Culinary Arts, Hair Dressing and Beauty Therapy, Plumbing and Ceramics, Welding and Fabrication, Tourism and Travel, Air Conditioning and Refrigeration, Animal Keeping, Exterior Design and Landscaping, Building Construction, Photography, Graphic Designing and Animation, Food and Beverage, Motor Vehicle Mechanics, Carpentry and Joinery, Fire Fighting, Metalwork, Electricity, Land Surveying, Science Laboratory Technology, Electronics, Printing Technology and Crop Production.

2. THEORETICAL FRAMEWORK:

This review adopted a theory of change approach. This theory explains how a given intervention is expected to lead to a specific change, drawing from causal analysis based on available evidence. The theory assists in identifying interventions to effectively deal with the causes of issues that prevent progress and outlines decisions upon which approach should be taken, considering their advantages, effectiveness, feasibility and uncertainties that are part of any change process (United Nations Development Group, 2014). This theory also assists to identify the hypotheses and risks that will be critical in comprehending and revisiting during the entire process to ascertain that the approach will contribute to the expected changes. Curriculum change in Kenya is an exercise which is influenced by many factors key among them, the societal and industrial needs with reference to manpower training. For instance, there have been lamentations from the industry that the graduates from the higher learning institutions do not fit well in the work-place, the key blame being apportioned on the theoretical nature of the traditional curriculum, whence the industry requirement



is a skill-based human resource. Based on the theory, Kenya constituted a commission to analyze the problems of the 8-4-4 curriculum and it is the recommendations that informed the change. It should be recalled that agriculture is a practical subject however; its orientation in the traditional curriculum did not put into consideration the practical components which lead to skills acquisition. The solution therefore would be the revamping of the curriculum to ensure the required competencies are taught and acquired by the learner. This is the essence of the CBC.

3. LITERATURE REVIEW:

Agricultural Technical, Vocational Education and Training in Kenya

Technical and Vocational Education and Training (TVET)

TVET has for years provided an avenue to education and job training in modern educational economies in developing and developed countries. By definition, TVET is used to refer to the aspects of the educational process involving, in addition to general education, the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life (UNESCO, 2004). Hoffman (2011) reports that with focus being put on education for attainment of skills for occupations, TVET programs in advanced economies have been largely placed as either an addition to secondary education or within the post-secondary education context, standing as an alternative pathway to training at the university.

In third-world countries, the situating of TVET has not been clearly defined historically, with programs and institutions ranging from alternatives to general primary and secondary education (including non-formal and informal educational trainings), to job-specific skills training, to more traditional vocational colleges and certification programs (King 2011).

Agricultural Technical and Vocational Education and Training (ATVET)

ATVET is basically a branch of TVET. It is meant to provide skills training for agricultural sectors that are mostly disconnected from more dynamic or growing sectors of national economies and the labor demands of those sectors. Formal ATVET in many sub-Saharan African is mostly anchored on colonial systems, which put emphasis on formal education through a small number of elite universities and midlevel colleges (Katharina & Sonja, 2016). These colonial approaches have not changed magnificently in many African countries, whereas a few better-developed ones seem to have realized some differences. ATVET in Kenya is anchored at post-secondary school level.

The Ministry of Agriculture, Livestock and Fisheries (MoALF) has instituted several technical tertiary institutions where trainings are offered at various levels, as well as Farmer Training Centres (FTCs), which help to equip farmers with various skills for modern agriculture (Nganga, 2018). Among the formal institutions are 33 and 72 offering certificate and diploma programmes respectively in agriculture, agribusiness and related subjects. There are also 22 public and private universities, 6 universities of science and technology, 2 technical training institutes, plus specialized institutes and schools of that offer the trainings (Permanent Working Group on Technical and Vocational Training and Education and TVET Authority, 2017). It is true therefore that universities and middle-level colleges offer ATVET in Kenya. There has been an outcry by industry employers that ATVET is tilted on more theory than practical skills envisaged for employment. This is occasioned partly by the fact that most ATVET institutions, are manned by different government ministries, as well as private arrangements, therefore this sector has missed on having universally thorough and recognized training standards and programmes. This is because the length of training and the extent as well tend to vary from one ATVET institution to the other (Mukhwana, 2018).

4. METHOD:

This study adopted the historical design. The purpose of this design is to collect, verify, and synthesize evidence from the past to establish facts that defend or refute your hypothesis (Sacred Heart University, 2020). It focused on secondary sources of data to come to a conclusion. In this study, literature was gathered from various documentary evidences to describe the position of agriculture in the CBC as well as the implications on further training in Kenya.

5. RESULT AND DISCUSSION:

The Position of Agriculture in the CBC

As was earlier mentioned, the CBC was developed by the KICD following the outcry on the shortcomings of the 8-4-4 curriculum. Before delving into the CBC curriculum and the place of agriculture subject, it is key to briefly peep into the 8-4-4 curriculum and how it treated agriculture as a subject in Kenyan schools. It is worth recalling that the 8-4-4 system of education came into place in 1985, several changes having been instituted since then, but this paper will focus on the changes that followed final review of the curriculum in 2002. The 8-4-4 system is organized into 3 years of pre-primary, 8 years of primary, 4 years of secondary and 4 years for university or 2, 2.5 or 3 years for middle-



level colleges. Starting with the pre-primary school, agriculture had been taught as a component of the Science activities (Kenya, nd) in which learners were taught various aspects regarding the practice and operation of agriculture.

At primary school (classes 1-8), it was taught (and still being taught at class 6-8) as an integrated science, which incorporated general science, home science, agriculture and aspects of the environment and health education. At the secondary school level (Forms 1-4), agriculture is an optional subject at all levels. In forms 1 and 2, students can choose it as an additional subject to make the 11 or 12 required while in some “advanced” schools, where subject choice is allowed at form 1, the student may opt for other technical and applied subjects to get the required leaving out agriculture. This is to say agriculture in the 8-4-4 secondary school curriculum in Kenya is not compulsory (Ongang’a, 2016). When students join form 3, those who had done the subject at lower level can choose to do it among the other 7, 8 or 9 subjects done at the final, Kenya Certificate of Secondary Education (KCSE) examinations. Focusing on the CBE curriculum, which is already being implemented in pre-school and primary school, agriculture has been given a different approach by the curriculum developers.

At the pre-primary school level, the subject is not clearly separated from the other subjects but components of it can be seen in the Environmental Activities. At the pre-primary 1 (PP1), components of agriculture can be seen in topics covering on plants, animals, weather and water (where the learner needs to learn about sources of water as well as water conservation). At the Preprimary 2 (PP2), acquisition of agricultural knowledge is also captured in the areas tackling on animals (knowing about animals in the immediate environment), weather (various weather conditions) and water (sources and uses of water) (Republic of Kenya, 2017a). At the lower primary school level, agriculture does not stand-alone again but little incorporation has been done in the Environmental Activities. For example in lower primary grade 1, agriculture can be seen implied in areas of environmental resources touching on weather and the sky, water sources and uses, identification of various plants and animals and efficient uses of water at home (republic of Kenya 2017b). At grade 2, topics on weather recording and interpretation, water storage, soil texture, plant parts, animal recognition as well as care and maintenance of the environment is taught. As for grade 3, learners are taught how to make water safe for drinking, kitchen gardening where they grow different types of crops, identification of internal and external parasites of livestock as well as safe storage of farm produce. In the upper primary grade 4, topics on soil structure and water holding capacity, uses of sandy, loamy and clay soils for farming, preparation of compost manure as well as uses of water in the farm are effectively taught (republic of Kenya 2019a). Also taught are water conservation through drip irrigation, growing of fruit crops including seedbed preparation and transplanting, uses of various domestic animals, vegetables gardening, cereals and legumes as well as gardening tools and equipment. When learners transit to grade 5, they learn soil recovery and improvement (which is a component of soil and water conservation), care for farm animals and growing of indigenous food crops and vegetables. At grade 6, learners acquire knowledge and skills in types and control of soil erosion, growing of creeping crops and ornamental crops as well as more information on erosion control.

Implications of CBC on ATVET

It is worth noting that there is a clear difference between the placement of agriculture in the 8-4-4 curriculum and the CBC. One outstanding difference is that agriculture subject has been given a central place in the curriculum, upon the realization of the role agriculture plays in the economy of Kenya as a developing country. The following are the outstanding issues of interest and how the new curriculum will impact on ATVETA. Firstly, agriculture as a subject has been revamped in the CBC and it has also been given focus in early learning where it is offered as an incorporated subject in pre-primary and lower primary schools while at the upper primary level, it is taught as a stand-alone subject. This means that the government has realized the central role of agriculture in the economy consequently the need to have it take the rightful position in the curricula.

Additionally, the government has recognized the role of ATVET in offering vocational skills to the young population and the fact that agriculture still is the largest employer to young people, both formally and informally. Agriculture sector is pivotal to Kenya's economy in that it contributes 26% of the Gross Domestic Product (GDP) and another 27% of GDP indirectly through linkages with allied sectors sectors.[10] It warrants employment to more than 40% of the country's population and more than 705 of Kenya's rural dwellers (FAO, 2021). Technical employable skills are what are needed for an advancing economy like Kenya.

Secondly, the fact that early specialization in agriculture has been introduced in schools where learners can specialized in agriculture in upper secondary, in the STEM pathway means that the basic education system will be producing citizens who are better prepared both mentally and educationally, to take up further specializations in agriculture. The students will be able to know what they want to do with their lives as far as further training is concerned. This is unlike the 8- 4-4 scenarios where learners choose careers at the tail end of the 8-4-4. This has led to a group landing in agricultural training by accident, rather than by choice or passion. For example, learners can be admitted to



universities of agriculture to train in agricultural education and extension simply because they missed their courses of choice, to fill the vacancies available. Others are admitted to such trainings without having done agriculture at form 4. An example in where agriculture is equated to geography during admission to the mentioned training. Even still, people could be admitted into further agricultural training without having sat the subject in KCSE. Thirdly, there is early career cadre, the students transiting from grade 12. These are people who will have had specializations in upper secondary school, being able to enter into the job market are pre-qualified personnel or having the choice to advance their studies at higher learning institutions. Giving learners the opportunity to specialize early enough ensures that they know and are well prepared about where they want to go and what they want to do. It is mind boggling that a certain percentage of students in Kenyan universities aren't certain about what they want to be after school, although they are already in trainings leading to certain specializations and qualifications.

Finally, there has been shortage of agricultural professionals and even with the making of agriculture a compulsory subject in upper primary and lower secondary schools, questions still linger if there will be sufficient teachers to handle the curriculum. There has also been a shortage of ATVET trainers since students have been shying away from agriculture. Consequently, there is likelihood of more people getting into agricultural fields at TVET colleges and universities. Effectively, having more personnel in agriculture is a plus for the sector, which still remains the key driver of the country's economy.

6. CONCLUSION AND RECOMMENDATIONS:

This study intended to find out the position that agriculture as a subject holds in the new CBC in Kenya. A number of literatures were reviewed and it can be concluded that the subject has been made compulsory in the upper primary and junior secondary school levels. This therefore means the position of agriculture as the main driver of the economy has been restored. This equally means that the learner will eventually see the significance of this subject as a career field. It recommends therefore that enough teachers be employed and more facilities to be availed to facilitate practical skills acquisition.

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