

Home Science Education in Kenya: Visioning the Future

Catherine Sempele

Abstract

Remarkable changes are taking place in the education sector in Kenya. Home Science Education is not an exception. In the previous education system, Home Science was only offered as an optional subject at the secondary and tertiary levels of education. This came with various challenges related to the teaching and continuity of the subject at various levels of learning. However, in the new curriculum structure, it is proposed that Home Science subject be offered at all levels of education starting from the primary through to the university level. This paper presents results from qualitative data gathered using semi structured questionnaires from 23 Home Science tutors (6 male and 17 female) based in 9 Primary Teacher Training Colleges (PTTC) in Kenya. Further, this paper examines their perceptions of significant challenges facing Home Science Education in their learning institutions. These include challenges of the Home Science curriculum offered in PTTCs that relate to: attitude towards Home Science, curriculum content; instructional methods; instructional resources; assessment techniques; besides the trainees and trainers related challenges. Findings suggest that indeed there are many challenges PTTCs experience which are not unique to Kenya and that they in one way or the other affect Home Science Education at the other levels of study. Importantly, the paper gives suggestions on how best these challenges could be managed to improve the future of Home Science Education given its rebirth in the new curriculum structure in Kenya.

Key words: Home Science Education, Curriculum, Primary Teacher Training College

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Global Overview of Home Science Education

Home Science is an applied and integrated science that aims at improving the quality of life for the individual, the family and the community. Its main objectives are promotion of self-reliance and improvement of the quality of life of learners, their families and immediate community (Kenya Institute of Education (KIE), 2004; Nyangara, Indoshi & Othuon, 2010; Serem, 2011). Home Economics, traditionally regarded as a women's subject, is now taught to both men and women globally including countries like the United States, Canada, India, Pakistan, Ghana, Gambia, Nigeria, Tanzania and Zambia (Ma & Pendergast, 2011) to name a few.

Some of the countries offer Home Science right from primary to the university level. For some countries, Home Science is treated as a core subject. For instance, in Nigeria,

Home Economics is offered in the junior and senior secondary schools for all students both male and female. It is also offered in the tertiary and university levels of study. In Ghana and Tanzania, the subject is offered from primary through university levels (Ma & Pendergast, 2011).

Home Science Education in Kenya

According to a Needs Assessment Survey by the Kenya Institute of Curriculum Development (KICD), respondents indicated that Home Science should be emphasized in the reformed curriculum and made compulsory (KICD, 2017). The survey concluded that Home Science should be reintroduced in Kenya's education system and be made compulsory for all learners. The National Education Sector Plan (NESP) 2015 has shown that the learning activities that best expose a learner's abilities are included in Home Science. Home science as a discipline forms the foundation for learners who want to pursue careers in Health Education, Foods and Nutrition, Home Management, Costume and Fashion Design or Culinary Arts (KICD, 2017) amongst others. Home Science is classified as a technical and vocational subject that offers prevocational skills directly applicable to the world of work (Nyangara et al., 2010; RoK, 2003; Serem, 2011). It is notable that the Kenyan Government now proposes to offer Home Science right from the primary level of study because the basic skills obtained through Home Science Education are important for every child irrespective of their age (NESP, 2015).

Primary Teacher Education Home Science Curriculum in Kenya

According to Otunga, Odeo and Barasa (2011), a curriculum is the means to achieving the aims of education. The PTE (Primary Teacher Education) Home Science curriculum in Kenya was developed by KICD. After curriculum development, teachers at PTTCs implement the curriculum and supposedly cover it in a period of two years (RoK, 2016). Curriculum implementation is an important stage in the curriculum development process. According to Mwaka, Nabwire and Musamas (2014), the national goals of education embodied in Vision 2030 focus curriculum implementation on increasing learners' knowledge, experiences and imaginative understanding. Further, curriculum implementation is aimed at developing awareness of moral values and capacity for life-long learning amongst learners. To achieve this vision, Kenya needs a relevant curriculum which will provide appropriate knowledge, skills, attitudes and values that will enable learners move seamlessly from the education system into the world of work with further academic, technical and vocational education adding value

to what has been acquired through the education system (Mwaka et al., 2014; Otunga et al., 2011; Syomwene, Nyandusi & Yunungu, 2017).

Home Science Education in the Proposed Basic Education Curriculum Framework

The vision of the basic education curriculum reforms (BECF) is to enable Kenyan learners become engaged, empowered and ethical citizens (KICD, 2017, p. 10). The Government aims to accomplish this by providing an excellent teaching environment, adequate resources and a sustainable visionary curriculum that will provide every learner with high quality learning that is mainly competency based. Further, focus will also be placed on developing a highly knowledgeable, reflective, professional teacher that has additional enhanced skills and confidence in a range of modern pedagogical tools such as coaching, facilitating, and mentoring.

The mission of the basic education curriculum reforms is to nurture every learner's potential. The BECF outlines seven core competencies to be achieved by every learner in basic education: communication and collaboration, self-efficacy, critical thinking and problem solving, creativity and imagination, citizenship, digital literacy and learning to learn (KICD, 2017, p. 21).

A competency based curriculum is a preferred curriculum in that it "is learner-centered, focuses on acquisition of competencies, offers learners the opportunity for decision making and inquiry, provides a balance between formative and summative assessment, is digitally based, uses collaborative and co-development models and boosts synchronous development" (KICD, 2017, pp. 26-27).

The proposed basic education structural model for Kenya's education system has 3 levels:

1. The Early Year's education encompassing 2 years in Pre-primary and 3 years in Lower Primary education.
2. The Middle School education comprising of 3 years upper primary and 3 years lower secondary education and
3. Senior School education which will last 3 years after which the graduates are expected to join middle level colleges and universities (KICD, 2017).

Home Science education begins at the Pre-primary education level under the subject “Environmental Activities” where learners are taught Personal Hygiene and Safety Skills. At the lower primary level, learners are taught ‘Hygiene and Nutrition Activities’ which will equip them with the basic knowledge, skills, attitudes and values that promote a healthy lifestyle.

At the Middle School education level, which has Upper Primary and Lower Secondary, Home Science is introduced as a subject. Content to be taught at Upper Primary includes: Foods and Nutrition, Meal Management, Home Management and Clothing and Textiles (KICD, 2017, pp. 37-38). At Lower Secondary level, graduates of primary school are expected to explore their own abilities, personality and potential as a basis for choosing subjects according to career paths of interest at the Senior School. Home Science is offered as an optional subject while Health Education and Life Skills Education are offered as core subjects (KICD, 2017, pp. 41-42).

Education at Senior School entails the choice to pursue studies in one of the three pathways: the Arts and Sports Science, Social Sciences or Science Technical Engineering and Mathematics (STEM) pathway (KICD, 2017, p. 51). The STEM pathway entails the Pure Sciences, Applied Sciences, Technical and Engineering Studies and the Career and Technology Studies options. Home Science related areas: Foods and Nutrition and Home Management are classified under the Applied Sciences (KICD, 2017, p. 68). Students graduating from the Applied Sciences track shall be expected to join middle level colleges or universities to pursue careers in areas such as Agricultural Engineering, Computer Engineering, Foods Science and Technology, Business and Hospitality and Home Economics.

In order to achieve the objectives of Home Science Education under the new BECF, it is important to identify the challenges affecting the implementation of the current PTE Home Science curriculum. Primary Teacher Education is considered a key level of education because it is at this level that primary teacher trainees graduate and proceed to teach in primary schools in Kenya. The quality of their teaching is bound to influence the outcome of learning. Given that Home Science Education will begin at the primary level of learning, it is crucial that this begins on the right footing. The learners’ attitude towards the subject and their behavior and interests in the subject will be established at this level; hence it is vital that the teacher who teaches these learners has the relevant knowledge, skills, attitudes and values regarding Home Science as a subject.

Challenges affecting Primary Teacher Education

Research has established that Primary Teacher Education, as a whole has had its own challenges. For instance, a majority of trainers at PTTCs lack the necessary skills and competences to train primary school teachers (Galabawa, 2003; Lolelea, 2011). This is because most of them are trained in universities as secondary school teachers then end up teaching in PTTCs thus lack skills required to train the adult learner. This is bound to create a mismatch between the kind of training offered by the tutors and the training requirements of the teacher trainees. There is need for the Government to ensure that tutors in PTTCs are either trained or inducted appropriately to enable them adequately meet the training needs of learners at the PTTCs.

Further, research has established that teacher training education suffers from lack of a formal research agenda, weak linkage with teachers and tertiary institutions (Galabawa, 2003), low funding from the government, lack of adequate and appropriate tuition, teaching and learning materials and infrastructure (Iregi, 2015), over-emphasis on passing of examinations rather than on pedagogical skills (RoK, 2012; World Bank Report, 2007), irrelevance of some content to contemporary society, fixation on examinations and certification (Arubayi & Obunadike, 2011; KICD, 2017), inadequate promotion of creativity, innovation, analytical ability as well as capacity to deal with diversity (Digolo, 2006; Mulama, 2007; Otieno, 2008).

According to the Academy for Educational Development, (AED, 2008), the curriculum used for teacher training also experiences several challenges. For instance, the curriculum is seen to be deficient in the way it is planned, its ability to effectively train primary school teachers, its guidance regarding the development of teaching and learning resources besides the suggested mechanisms for curriculum implementation and evaluation. Further, the curriculum is seen to be ineffective in resource allocation (Kenya National Commission on Human Rights (KNCHR), 2007); matching skills with contemporary demands (RoK, 2007); in-servicing of primary school teachers and infusion of Information and Communication Technology (ICT) in the curriculum (Gakuu, Kidombo, Bowa, Ndiritu, Mwangi & Gikonyo, 2015; Thurania, 2010).

These challenges are not peculiar to Kenya only. In Uganda, according to Kagoda and Ezati (2013), in their study “Contribution of primary teacher education curriculum to quality primary education in Uganda”, Primary Teacher Colleges (PTCs) are reported to experience the following challenges: limited government funding, inadequate teaching and learning materials and infrastructure, the absence of a unified continuous professional development programme, use of teacher-centered methods of teaching, the curriculum is examination oriented and that it does not include some of

the subjects taught in primary schools like languages, specifically Kiswahili and local languages. Therefore, this study sought challenges affecting Home Science Education in PTTCs given that this is the level at which the Home Science teacher for the primary school child is trained.

RESEARCH APPROACH

This study employed the qualitative research strategy to get an in depth understanding of the research problem and offer possible solutions. The study targeted public and private PTTCs in Kenya. This is because it is at the PTTCs that the PTE Home Science curriculum is implemented. Owing to the fact that PTTCs are widely spread, a cross sectional survey was deemed appropriate for gathering the information required. The study considered 30 PTTCs that were operational since the last review of the PTE Home Science curriculum in the year 2004.

Administratively, Kenya was initially divided into 8 provinces namely, Central, Coast, Eastern, Nairobi, North Eastern, Nyanza, Rift Valley, and Western. There are 47 counties currently although not all counties have PTTCs in them. In order to ensure that views from all regions were incorporated, this study opted to use PTTCs in the eight provinces for study. Thus, the researcher stratified the 30 PTTCs into public and private categories. This resulted into 19 public and 11 private PTTCs. Their respective proportions in the target population were then computed to give an approximate ratio of 2 public to 1 private PTTC. In order to select the public PTTCs that would participate in the study, one public PTTC from each of the regions; Central, Coast, Eastern, Nyanza, Rift Valley and Western were randomly selected. Nairobi region was not included because it did not have a public PTTC. North Eastern region was also left out because of insecurity reasons. This gave a total of 6 public PTTCs.

In order to get a proportionate representation of both public and private PTTCs in the study, their respective ratios of 2:1 in the target population were used to compute the number of private PTTCs that would take part in the study. Based on the 6 public PTTCs identified for study, this gave a total of 3 private PTTCs. Therefore, the researcher identified Nairobi as one of the regions from which one of the private PTTCs would be selected because it was not represented during the selection of public PTTCs.

The remaining 2 private PTTCs were then randomly selected from the remaining 10 private PTTCs excluding Nairobi region. This gave a total of 6 public and 3 private PTTCs for inclusion in the study representing 30% of the target population which is considered adequate for study (Mugenda & Mugenda, 2008). The 9 PTTC's selected,

gave a total of 23 Home Science tutors; 6 male and 17 female. The researcher purposively sampled all of them as participants in the study. This is because they were few in number thus easy to manage.

The data obtained between January & July 2016 was collected using self administered, semi-structured questionnaires for the tutors. The questionnaires had two parts: the first part that consisted of both open and closed ended questions sought respondent's demographic information that included sex, age and background in Home Science Education and respondents' educational and professional qualifications.

The second part sought information on tutors' views towards the challenges they experienced during the implementation of the PTE Home Science curriculum in their respective learning institutions and possible solutions to these challenges. These were categorised into attitude towards Home Science Education; curriculum content; instructional methods; instructional resources; assessment techniques; besides the trainees' and tutors' related challenges. The researcher organized the data collected into categories and patterns, synthesised them to themes then interpreted the findings to give meaning.

RESULTS AND DISCUSSIONS

Respondents Demographic Information

Results showed that a total of twenty-three tutors participated in the study. Eighteen (78.2%) of them were from public and 5 (21.7%) from private PTTCs. Six (26.1%) males and 12 (52.1%) females were from public PTTCs and only 5 (21.7%) females and no male participated in the study from the private PTTCs.

Further, a majority of the tutors 12 (52.2%) were aged between 41 and 50 years. Eight of them (34.8%) were aged between 31 and 40 years while 2 (8.7%) tutors were aged between 21 and 30 years and one tutor (4.3%) was above 51 years. The high number of tutors aged between 41 and 50 years may be attributed to the fact that most tutors end up in PTTCs after first teaching in secondary schools for several years. There are usually very few tutors posted to teach in PTTCs directly from university during their first posting.

Tutors' Background Knowledge in Home Science

All 23 tutors had background knowledge in Home Science Education either from their master's degree 2 (8.7%), bachelor degree 17 (73.9%), secondary school education 1 (4.3%) or primary school education 3 (13%). On tutors' professional qualification, six (26.1%) of the tutors had a postgraduate degree and 16 (69.6%) only an undergraduate degree. One tutor had a diploma certificate. Out of the six tutors with a postgraduate degree, 2 (8.7%) had a postgraduate degree in Home Science Education while the remaining 4 (17.1%) had their postgraduate degrees in other areas of specialization besides Home Science Education.

These findings suggest that some Home Science tutors have opted to further their education in other areas of specialization other than in Home Science Education. The uncertainty on the future of Home Science Education in Kenya may have contributed to such decisions.

Challenges

a). Teaching of Home Science in Primary Teacher Education

This study established that there are various challenges affecting the teaching of Home Science in PTTCs in Kenya.

b). Attitude towards Home Science Education

Based on the results shown in Table 1.1, teacher trainers were of the opinion that society has a negative attitude towards Home Science Education (65%) besides considering it a subject for women only (35%). This, they felt greatly affected trainees' choice to pursue the subject in PTE. Those that took Home Science as one of the subjects to study did this just because it is classified as one of the subjects in the sciences category in the PTE curriculum hence they had no other option. They would not have chosen it if offered on its own.

c). Planned Curriculum Content

Regarding planned curriculum content, most of the respondents believed that there is very little time for teaching the whole syllabus (87%) and that it was too wide (65%). The fact that students lack background knowledge in Home Science (43%) and that the subject is not taught in primary schools (26%) came out as key challenges too. Most

trainees were not eager to study it since they would not have to teach it in primary schools after graduating from PTE.

d). Instructional Resources and Methods

Regarding instructional resources used during Home Science lessons, the majority of the teacher trainers were in agreement that instructional resources are inadequate (91%). Further, institutions offer them inadequate support and funding (35%) and that tutors lack innovative skills (30%) in improvising and using the local environment to address the issue of resource inadequacy.

In terms of instructional methods used to teach Home Science lessons, respondents felt that they were inappropriate for adult learners (48%) and paid little attention to learners as individuals (9%). Further, Home Science tutors tend to overuse the lecture method of teaching (43%) and prepare less (22%) for lessons.

e). Assessment Techniques

The fact that KNEC does not evaluate practical work in PTE examinations was a problem to 65% of the tutors. Further, respondents opined that examinations offered in PTE are too many (30%) besides the fact that they do not relate to what should be covered as indicated in the syllabus (39%).

Table 1.1: Challenges Affecting Home Science Education

S/No.	Curriculum challenges	Distribution %
Challenges related to attitude towards Home Science Education		
1.	Negative attitude towards the subject	65
2.	Considered a women's subject	35
Challenges related to planned curriculum content		
1.	Inadequate teaching time	87
2.	Wide syllabus	65
3.	Students lack background information	43
4.	Subject not taught in primary school	26
Challenges related to instructional resources		
1.	Lack of teaching resources	91
2.	Inadequate support and funding	35
3.	Lack of innovative skills	30
4.	Use of unsafe teaching resources	22
Challenges related to instructional methods		
1.	Inappropriate teaching methods for adult	48
2.	Over use of lecture method	43
3.	Inadequate content mastery	22
4.	Lack individual attention	9
Challenges related to assessment techniques		
1.	No practical assessment in PTE	65
2.	Setting questions outside the syllabus	39
3.	Too many examinations	30
Other general challenges		
1.	Inadequate staff	74
2.	Big classes	57
3.	Disruptions from other college activities	48
4.	Lack of staff commitment	17
5.	Students' absenteeism	13

(Source: Research Data, 2016)

Other Related Challenges

Other general challenges identified to be affecting Home Science Education in PTTCs included lack of adequate teaching staff (74%) and the fact that classes are too big (57%) besides disruptions from other college activities (48%). This seems to imply

that based on enrolment rates at the PTTCs and the congested college calendar, Home science tutors experience challenges in organizing and managing lessons particularly practical lessons.

These findings are similar to findings that PTE has challenges related to planning of the PTE syllabi, staff training, development of teaching and learning resources and evaluation and support of curriculum implementation by AED (2008), inadequate resource allocation (KNHCR, 2007), lack of resources creation, adoption, adaptation and usage of knowledge, matching skills with contemporary demands (RoK, 2008; RoK, 2007) and in adopting alternative appropriate methods of curriculum delivery (RoK, 2007).

Further, Arubayi and Obunadike (2011) and KIE (2011b) identified other challenges as wide syllabus, difficult tests and topics, lack of excursions and fieldtrips and uninteresting methods of teaching. Telewa (2009) avers that the major constraints faced by Home Science teachers include: inadequate teaching resources, limited time allocated for teaching Home Science, lack of induction courses, wide curriculum scope and large classes.

In Uganda, Kagoda and Ezati (2013) found that PTCs experience limited government funding, inadequate teaching and learning materials and infrastructure, the absence of a unified continuous professional development programme, use of teacher-centered methods, the curriculum is examination oriented and that the curriculum of PTC does not include some of the subjects taught in primary schools.

Additional Suggestions from Participants

Respondents were further required to give suggestions that would help improve Home Science Education particularly in PTTCs in Kenya. Eighty percent (80%) suggested that management in the various PTTCs should ensure that instructional resources are available and adequate for Home Science lessons; facilitate prompt guidance and counselling for students on course choices and generally the benefits of Home Science Education (45%); reduce college activities (44%) so as to create more time for teaching and learning besides supervising tutors' work (24%) to ensure they adhere to set guidelines as shown in Figure 1. Further, respondents were of the opinion that tutors should prepare and plan for their lessons adequately (31%) and embrace resource improvisation whenever possible (47%).

The KNEC and Ministry of Education, Science and Technology (MoEST) should ensure that PTE examinations are set in line with the syllabus (41%) requirements and that practical work in Home Science is also examined. This will improve the use of practical method as one of the instructional methods in PTTCs thus boost the level of skill acquisition by teacher trainees. Lastly, thirty-seven percent (37%) of the respondents believed that KICD should review the PTE Home Science curriculum besides allocating more time for Home Science lessons (75%) in PTE.

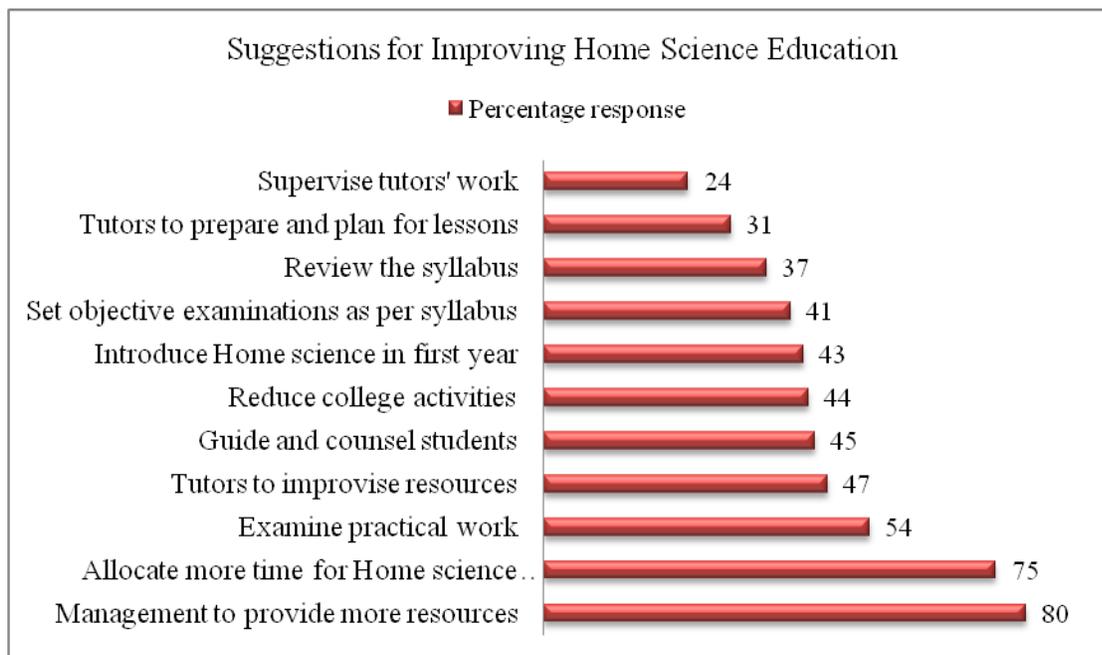


Figure 1: Suggestions for Improving Home Science Education

CONCLUSION AND RECOMMENDATIONS

Home Science Education under the PTE curriculum experiences various challenges related to attitude towards the subject, planned curriculum content, instructional methods, assessment techniques and instructional resources. This has hindered the effective implementation of the Home Science curriculum in PTTCs. Given the new educational reforms in the country, Home Science may be successfully offered in Kenyan schools if these challenges are addressed promptly. Therefore, the study gives the following recommendations:

Policy Implications

KICD should review the current curriculum so as to improve on its content to make it up to date and relevant for the needs of the society. Preferably, Home Science should be re-introduced in the first year of study in the PTE curriculum for adequate content coverage. KICD should be more proactive in regularly reviewing the curriculum to ensure that it remains relevant and achievable with clearly spelt out course objectives.

Further, KNEC should examine practical work in PTE examinations given that Home Science is a vocational subject which requires that its graduates acquire both knowledge and skill competencies. In order to address the shortage of Home Science teachers in the country, more universities should consider offering HSC Education as one of the degree programmes.

Teacher Education and Training

Home Science tutors should embrace learner-centred methods of teaching and ensure that they address the needs of individual learners hence producing independent learners with capacity for problem solving, decision making, creativity, critical thinking, intellectual curiosity and self-motivation for further learning. Being a vocational subject, emphasis should be on planning for more hands-on learning experiences for the learner. Home Science tutors should improvise as much as possible and make use of the local environment around them. The success of PTE Home Science curriculum has traditionally been judged by the grades teacher trainees get in PTE examinations. This study recommends a paradigm shift so that PTE evaluation is done in terms of how well teacher trainees get equipped with knowledge, skills, attitudes and values of Home Science Education and ultimately how well they use these competencies to improve their standards of living and that of their families and the general society. KNEC and Home Science tutors should thus adapt assessment techniques that allow learners to practice skills learnt rather than just recalling learnt content.

Institutional managers should consistently and promptly offer support to Home Science tutors for effective lesson delivery. If possible, government should step in to support the PTTCs in financing the subject. Collaboration and attachment to existing businesses like hotels, hospitals and textile processing firms will boost competence acquisition amongst learners.

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