



COMMONWEALTH *of* LEARNING

**Policies and
Practices in Open,
Distance and
Technology-Enabled
Learning in Teacher
Training in Kenya**

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The Commonwealth of Learning (COL) is an intergovernmental organisation created by Commonwealth Heads of Government to promote the development and sharing of open learning and distance education knowledge, resources and technologies.

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Table of Contents

List of Figures	v
List of Tables	v
Abbreviations	vi
Executive Summary	ix
Chapter 1: Introduction	1
1.1 Background	1
1.2 Open, distance and technology-enabled learning	3
1.3 Teacher education in Kenya	5
1.4 Rationale for the study	9
1.5 Study objectives	10
1.6 Methodology	10
1.7 Outline	12
Chapter 2: Pre-Service and In-Service Teacher Training Policy in Kenya	14
2.1 Introduction	14
2.2 Overview of pre-service and in-service teacher training in Kenya	15
2.3 Pre-service and in-service teacher training policies in Kenya	20
Chapter 3: Resource Availability for Teacher Development in Kenya	34
3.1 Introduction	34
3.2 Current status of ODL/TEL in Kenya	35
3.3 ODL initiatives in Kenya	37
3.4 MOOCs	39

3.5	Model countries	42
Chapter 4: Teacher Data and Management.....		45
4.1	Introduction.....	45
4.2	Teacher management information system (TMIS).....	46
4.3	TMIS and decision-making	47
4.4	Decentralisation of the TMIS and potential for an interactive teacher database.....	50
Chapter 5: Towards a Policy Framework for ODL in Teacher Training in Kenya		53
5.1	Introduction.....	53
5.2	Policy gaps.....	53
5.3	Recommendations.....	56
References.....		64
Annexures		72
Annexure 1: Country Policy Profile		72
Annexure 2: Key Interview Guide for Informant 1		78
Annexure 3: Key Interview Guide for Key Informant 2.....		82
Annexure 4: Key Interview Guide for Informant 3		85

List of Figures

Figure 1: TMIS Landing Page	47
Figure 2: Online services offered on TMIS	50

List of Tables

Table 1: Pre-service qualification for teachers in Kenya.....	25
Table 2: Kenya Professional Teaching Standards	31
Table 3: TPD Hierarchical Competency Levels	32

Abbreviations

CEMASTEA	Centre for Mathematics, Science and Technology Education in Africa
COL	Commonwealth of Learning
CBC	Competency-Based Curriculum
CPE	Certificate of Primary Education
DEASA	Distance Education Association of Southern Africa
DETA	Distance Education and Teachers' Training in Africa
DLP	Digital Literacy Project
EYE	Early Years Education
GER	Gross Enrolment Ratio
GoK	Government of Kenya
HI	Hearing Impairment
ICT	Information and communication technology
ICTEC	ICT in Education Centre
IEC	Information, Education and Communication
IIEP	Integrated Individualised Education Programme
ITL	Inclusive Teaching and Learning
JKUAT	Jomo Kenyatta University of Agriculture and Technology
KCPE	Kenya Certificate of Primary Education
KCS	Kenyan Cloud School
KEC	Kenya Education Cloud
KPEEL	Kenya Primary Education Equity Learning
KEMI	Kenya Education Management Institute
KePTS	Kenya Professional Teaching Standards
KICD	Kenya Institute of Curriculum Development
KISE	Kenya Institute of Special Education
KNEC	Kenya National Examinations Council
KSL	Kenyan Sign Language
M&E	Monitoring and Evaluation

MoE	Ministry of Education
MOOCs	Massive Online Open Courses
NCCE	National Commission for College Education
ODeL	Open, Distance and e-Learning
ODL	Open and Distance Learning
OER	Open Educational Resources
PGDE	Postgraduate Diploma in Education
PTE	Primary Teacher Education
PTR	Pupil–Teacher Ratio
SBTSS	School-Based Teacher Support System
SDG	Sustainable Development Goals
SEQIP	Secondary Education Quality Improvement Project
SME	Science, Mathematics and English
SNE	Special Needs Education
SSA	Sub-Saharan Africa
STR	Student–Teacher Ratio
SODeL	School of Open, Distance and e-Learning
TEL	Technology-Enabled Learning
TEPD	Teacher Education and Professional Development
TESSA	Teacher Education in Sub-Saharan Africa
TIMEC	Teacher Induction Mentorship and Coaching
TIVET	Technical, Industrial, Vocational and Entrepreneurship Training
TMIS	Teacher Management Information System
TPAD	Teacher Performance Appraisal and Development
TPC	Teacher Proficiency Course
TPD	Teacher Professional Development
TSC	Teachers Service Commission
TTC	Teacher Training Colleges
TVET	Technical and Vocational Education and Training

UK	United Kingdom
UoN	University of Nairobi
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development
VI	Visual Impairment

Executive Summary

In Kenya, education and training are recognised as principal catalysts for the realisation of the Kenya Vision 2030, which aims to transform Kenya into a newly-industrialised, middle-income country providing a high quality of life for all its citizens. It is also acknowledged that the success of the education system in the country hinges on the quality of teachers, which is central to the production of a knowledgeable and productive workforce that actively contributes to sustainable economic development as espoused by the 17 Sustainable Development Goals (SDG). Occasioned by the need to realign teacher training to match the human capital development requirement the Kenya Vision 2030 and the SDGs espouse, the Ministry of Education (MoE) and Teachers Service Commission (TSC) have over the years implemented a number of policies, frameworks and practices aimed at guiding both pre-service and in-service teacher training in the country.

This report thus delves into the various policies, frameworks and practices pertinent to both pre-service and in-service teacher training in Kenya. These are explored and organised into five chapters. As elaborated in the report, teacher training in Kenya is provided to meet the demands of four levels of education: pre-primary, primary, secondary and tertiary education. The institutes offering training at these levels are early years education (EYE) centres, teacher training colleges (TTCs), and universities. Pre-primary and primary teacher training courses focus on pedagogy and subject knowledge content. Secondary teacher training courses are, on the other hand, provided through two models: consecutive and concurrent models. In the consecutive model, trainees undertake the subject area first and graduate with either a Bachelor of Arts or Bachelor of Science degree and later undertake a nine-month postgraduate diploma to qualify as trained teachers. In the concurrent model, trainees study both the subject area and pedagogy simultaneously and graduate with a Bachelor of Education degree.

The MoE is, at the headquarters level, responsible for policy formulation, policy review, supervision and implementation in all sectors of the MoE, including pre-service teacher training and management. Along with the Ministry, the main stakeholders involved in the formulation of pre-service teacher training policies in the country include the TSC (albeit in an advisory capacity), directorate in charge of teacher management, the Kenya Institute of Curriculum

Development (KICD), Technical and Vocational Education and Training (TVET) institutions, the Kenya Education Management Institute (KEMI), Kenya Institute of Special Education (KISE), as well as various development partners. The Ministry's current policy priorities on pre-service and in-service teacher training in Kenya includes addressing structural challenges occasioned by the newly introduced junior secondary schools under the new 2-6-3-3 education system, which succeeds the 8-4-4 system.

Pre-service teacher training and the formulation of policies in this regard are under the purview of the MoE through TTCs at the diploma level and university at the degree level. While the TSC is not involved in pre-service teacher training, the Commission is mandated by the constitution to advise the national government. While only playing an advisory role in pre-service training, the Commission is, as a major employer, instrumental in shaping pre-service teacher training by helping both TTCs and universities align their training with the market requirements. In-service teacher training in Kenya falls within the mandate of the TSC, which was established under Article 237(2) of the Constitution of Kenya (2010) to discharge a number of functions pertinent to teacher training and management. As one of its functions, the TSC has a statutory mandate, through the enactment of the Teachers Service Commission Act, Cap 212, section 11(e), to facilitate the professional development of teachers. A teacher training programme was thus introduced in the year 2021, and over 100,000 teachers have enrolled since.

Despite the well-structured approach and notable achievements made under the teacher professional development (TPD) programme, it faces a number of challenges that threaten its sustainability. The uptake has been a challenge because of pushback by teachers and their unions who should bear the training costs. There is also a lack of awareness on the part of the teachers regarding the TPD programme and its importance in professionalising teaching as is done in other parts of the world. Currently, the concepts of ODL/TEL/OER/MOOCs in both pre-service and in-service teacher training in Kenya are new. Sessional Paper No. 1 of 2005 on a Policy Framework for Education, Training and Research (Republic of Kenya, 2005) first recommended the establishment of a National Open University as an ODL initiative.

As at present, a technical working committee on the establishment of the Open University of Kenya (OUK) has been constituted and on 12 March 2023 embarked on the process of

developing modules for online courses for the first and second years. The committee is also tasked with recommending a framework of operationalising the National Open University of Kenya and a framework on open, distance and e-learning (ODEL) to operationalise the Open University framework. The University was chartered in June 2023 and began operations in September 2023. The university will offer eight online courses. Phase one will offer degrees and diplomas in cyber security and digital forensics, technology education, business and entrepreneurship, data science, economics, statistics, agriculture technology and food systems. It will also offer postgraduate diploma courses in leadership and management.

There are a number of policies, frameworks and programmes aimed at guiding both pre-service and in-service teacher training in the country, albeit largely silent on ODL/TEL/OER/MOOCs. These include Sessional Paper No. 14 of 2012 (Republic of Kenya, 2012); Code of Regulations for Teachers (TSC, 2015); Sessional Paper No. 1 of 2019 (Republic of Kenya, 2019); Career Progression Guidelines for Teachers (TSC, 2018); Kenya National Qualification Regulations (2018); National Pre-Primary Education Policy Standard Guidelines (Republic of Kenya, 2018); Policy on Mentorship and Coaching in the Teaching Service (TSC, 2020); Teacher Recruitment and Selection Policy (TSC, 2019); and the Teacher Professional Development (TPD) programme.

A review of the foregoing policies reveals a number of gaps as far as the use of ODL, TEL, OER and MOOCs in teacher training in Kenya is concerned. These are explored in detail, along with their respective recommended policy interventions. The gaps include limited policy framework and direction; lack of quality assurance; limited awareness and capacity building; poor infrastructure and connectivity; poor digital literacy and training; lack of recognition and accreditation; equity and inclusivity; support systems; various policy actors working in silos; lack of sustainability and institutional support; intellectual property rights; and licensing and unavailability of resources for implementation.

Chapter 1: Introduction

1.1 Background

In the present information age, building a knowledge society capable of producing and using information to create and apply knowledge provides great potential for countries to strengthen their socio-economic development (Bell, 2016). At the forefront of this era is the education system that can be leveraged to produce a knowledgeable and productive workforce that actively contributes to sustainable economic development, as espoused by the 17 Sustainable Development Goals (SDGs). Accordingly, the success of any education system hinges on the quality of teachers (United Nations General Assembly, 2015). This means teachers who possess sound pedagogical knowledge and who can deliver effective instruction that provides learners with meaningful learning that fits the 21st-century skillset. Against this backdrop, improving the quality of teachers is particularly central to the realisation of Goal 4 of the SDGs, which is “to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” (Akkari, 2017). As such, if SDG 4 is to become a reality, attention needs to be paid to investing in the teacher education process and developing a quality teaching workforce.

In the Kenyan context, education and training are recognised as principal catalysts for the realisation of Vision 2030 under the social pillar (Republic of Kenya, 2021). This acknowledges their role in delivering a competent and productive workforce that meets the human resource requirements for a rapidly changing and more diverse economy. Accordingly, the priority areas under the second medium-term plan (2013–2017) included actualising the right to free and compulsory basic education; enhancing the quality and relevance of education; integrating information and communication technology (ICT) into teaching and learning; and improving the quality and relevance of post-basic education. This brings into focus the importance of quality teachers and teaching in the attainment of quality education for a competent workforce through which Kenya can acquire the status of a knowledge economy by the year 2030 (Republic of Kenya, 2021). Accordingly, the activities and projects the sector set out to implement to address the identified priority areas included massive infrastructural improvement across education and training institutions, and teacher recruitment to reverse the high teacher shortage in the country.

Teacher enrolment has been pegged at a gross enrolment ratio (GER) of 99.6% in primary school education and 71.2% in secondary school education. This indicates that there is still a persistently high teacher shortage in the country (United States Agency for International Development [USAID], 2022). The current pupil-teacher ratio (PTR) in public primary schools is 56:1 instead of the recommended 40:1; in public secondary schools, the student-teacher ratio (STR) stands at 41:1. In Kenya, however, the government, through the TSC, employs “staffing norms” in determining teacher placement and balancing as opposed to either PTR or STR.¹ This is because of the regional disparities in learner populations. Under the staffing norms, the focus is more on classes/grades, where each class must have a teacher irrespective of the number of pupils or students. With guidance from KICD – which calculates the number of lessons per subject – teacher workload under the staffing norms is calculated to determine how many lessons a teacher can teach per subject.²

As of the year 2022, both public primary and secondary schools were reeling from a 30% teacher deficit attributed to increased enrolment rates from the 100% transition from primary to secondary schools strategy; demands brought about by the need to train more teachers in the new competency-based curriculum (CBC) as the country transitions from the 8-4-4 system to the new 2-6-3-3 system; and the introduction of junior secondary school (JSS) level.³ This calls for a massive drive to train more teachers in the country, as espoused by the second medium-term plan of Vision 2030. Open and distance learning (ODL) and technology-enabled learning (TEL) in teacher training hold a lot of promise in realising this.

The current staffing levels vary regionally across urban and rural settings, with pockets of insecurity notably contributing to this disparity. Parts of the Rift Valley region, such as West Pokot, are, for instance, the most affected and are referred to as “hard to staff” areas. To address the shortage, the government is currently recruiting 30,000 pre-service teachers. This is, however, negated by the over 23,000 JSSs that have recently been opened up to cater for the 2-6-

¹ Interview with Key Informant 1 held on 10 May 2023 at the TSC Headquarters, Nairobi, Kenya.

² Interview with Key Informant 3 held on 16 May 2023 through a virtual meeting.

³ Interview with Key Informant 1 held on 10 May 2023 at the TSC Headquarters, Nairobi, Kenya.

3-3 system, which also creates more demand for teachers.⁴ In view of this, the Presidential Working Party on Education Reform was constituted to deliberate on this, among other challenges occasioned by the new curriculum, and is currently working on a report that is expected to address the teacher shortage given these new developments.

1.2 Open, distance and technology-enabled learning

ODL and TEL in teacher training has long been a major form of professional development for pre-service and in-service teachers in both developing and developed countries (Burns, 2011). ODL and TEL are about improving the quality of teaching so that teaching and learning can be improved. They have been used as a pre-service teacher preparation method with teacher candidates, mostly with extensive face-to-face preparation (often as part of a formal dual-mode institution). In developing and developed countries, ODL and TEL have been deployed as an in-service vehicle to fulfil a mandate to upgrade the knowledge, skills and qualifications of an existing teaching force (Bürgener & Barth, 2018). Finally, and predominantly within developed countries, ODL and TEL, mainly in the form of Web-based education, serve as a vehicle for continuing education, offering enrichment, enhancement and additional certifications for teachers who have attained at least a minimum level of certification for their content and grade level.

In Kenya, all public universities and most of the private universities have introduced ODL and TEL programmes to meet the increased need for pre-service and in-service teacher training and professional development (Nyerere et al., 2012). Some of the major providers include the University of Nairobi (UoN); Kenyatta University; Egerton University; Maseno University; Masinde Muliro University of Science and Technology; Jomo Kenyatta University of Agriculture and Technology (JKUAT); Multimedia University of Kenya; and Moi University (Nyerere, 2016). The Kenyan government's first initiative to come up with ODL was addressed in the first educational commission, commonly known as the Ominde Commission of 1964/65. Since then, subsequent education commissions have recommended the inclusion and support of

⁴ Interview with Key Informant 1 held on 10 May 2023 at the TSC Headquarters, Nairobi, Kenya.

ODL as an alternative mode of education provision in Kenya. Although ODL and TEL programmes are increasingly popular, as evidenced by the large number of learners subscribing to programmes, many scholars have raised issues with the quality of learning thereof owing to the reduced interaction between the lecturers and students going by the nature of the programmes' delivery (Mulwa et al., 2013).

The quality of teachers in any education system is often associated with pre-service teacher preparation. Lack of quality learning resources is a contributing factor to low-quality teacher training and professional development in many contexts. Using ODL methodologies, teacher trainers and developers can draw on new constituencies of the population to work as teachers while using technologies appropriately to enrich teachers' context and support practice (Nyerere et al., 2012). ODL and TEL can be used to stimulate and support teachers' active learning and reconceptualisation of the traditional organisation of initial teacher education and continuing development. For Commonwealth countries to meet the targets of SDG 4, in-country policies are needed to address the challenges around pre-service teacher training as well as in-service TPD using ODL and TEL. There is a need to work with various government-level stakeholders to evolve policies and strategies towards innovative teacher development using open, distance and technology-enabled learning to address the teacher shortfall in specific countries as well as teacher quality. In many developing countries, however, reliable information on teacher qualifications and teacher training policies remains hard to come by (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2017). Also, national teacher education programmes vary in terms of their content, duration and qualification levels. As a result, global and regional comparisons are difficult to make and/or interpret.

A recent policy brief by the Commonwealth of Learning (COL) suggests that policymakers can add value to global resources, such as COL Massive Open Online Courses (MOOCs), by promoting an open and tolerant attitude to pedagogies and technologies rather than prescribing and enforcing specific applications, formats and systems (COL, 2021). The policy brief calls for governments and other education stakeholders to leverage global MOOCs to achieve quality teacher development. Although several MOOCs are available for adaptation and use by teacher training institutions, the extent to which teacher training and professional development

programmes in the Commonwealth encourage the use of open educational resources (OER) and their perceived impact is yet to be documented. The availability of regionally tailored resources like those developed by Teacher Education in Sub-Saharan Africa (TESSA) may improve the uptake of OER for teacher development programmes.

The need to find ways of using existing resources differently, expanding access to learning opportunities at affordable cost, and providing alternative pathways to initial teacher training using distance learning has been highlighted in some global reports (Perraton, 2021). According to the UNESCO Institute for Statistics, some 69 million new teachers are needed globally to reach the 2030 education goals (UNESCO Institute for Statistics, 2024). The report notes that the greatest teacher shortages are in Sub-Saharan Africa, where a total of about 17 million teachers are needed to achieve universal primary and secondary education by 2030. At the 20th Conference of Commonwealth Education Ministers (20CCEM) held in Fiji in 2018, it emerged that about 19 million more teachers would be needed across the Commonwealth by 2030 (The Commonwealth, 2018), suggesting that the Commonwealth countries outside of Sub-Saharan Africa might have a combined shortfall of about two million teachers. This brings into focus the effectiveness of campus-based and other flexible approaches in pre-service teacher preparation in meeting this shortfall.

1.3 Teacher education in Kenya

The history of teacher training in Kenya can be traced back to the colonial period when missionary societies established schools and training institutions for teachers. In the early 20th century, the British colonial government established a teacher training college in Nairobi. After independence, the Kenyan government took over the responsibility of teacher education and established several colleges and institutes of education across the country to produce qualified teachers. In the 1980s, the government introduced a diploma in education programme to upgrade the quality of teachers in the country.

There are four levels of teacher education in Kenya: graduate teacher education; diploma teacher education; primary teacher education (PTE); and early years education (EYE).⁵ The Kenyan government policy on teacher education and training provided for in-service training of unqualified teachers in primary schools. Previously, the College of Education and External Studies (CEES), UoN, had an enhanced distance education programme that enabled teachers to take classes as they continued teaching. This was done in the traditional way, where course content was sent to the students, and they would send back assignments. Technology was not used in this programme.

In recent years, the Kenyan government has been implementing various reforms in teacher education and professional development to improve the quality of teaching and learning in the country. These changes aim to improve the quality of pre-service and in-service teacher training (Government of Kenya [GoK], 2007). The teachers will thus be equipped with skills to enable them to effectively teach in the 21st century; they are expected to address the needs of diverse learners and to improve student outcomes. In addition, GoK is keen on laying emphasis on in-service TPD. This includes providing teachers with opportunities for continuous professional development, such as workshops and conferences, to enhance their skills and knowledge. There has also been an increased focus on integrating technology into teacher education and training. This includes using technology in the delivery of teacher training programmes as well as preparing teachers to use technology in their classrooms to enhance learning outcomes for students. Currently, the Ministry of Education, Science and Technology framework has realigned teacher education and training to meet the human capital development as envisioned in Kenya Vision 2030. Consequently, in-service teacher training sessions through distance learning have been incorporated as a component of teacher training in Kenya.

Successive governments in Kenya have, over the years, demonstrated commitment to elevating the quality of teaching in the country through several programmes and initiatives aimed at teacher education. A notable teacher education programme that combines both pre-service teacher training and in-service TPD in the country is the Teacher Education and Professional

⁵Interview with Key Informant 3 held on 16 May 2023 through a virtual meeting.

Development (TEPD) programme (USAID, 2013). This was a partnership between USAID, the MoE and the private sector that sought to support public TTCs in strengthening the skills and expertise of educators and effectively prepare the next generation of teachers so they are prepared to deliver quality education. Over the life of the programme (May 2007 to May 2013), TEPD improved the skills of 1,600 primary teacher training college lecturers and 35,000 teacher trainees. A teacher competency framework was developed and adopted by the MoE to promote common standards in teaching skills, knowledge, professional values, behaviour and evaluation. While technology was provided in the programme to supplement teacher training and enhance the classroom experience, integrating ODL would ensure its sustainability throughout its lifespan.

Along with teacher education programmes in the country, there have been attempts at revamping the institutional framework pertaining to teacher training. For instance, the TSC, before its re-establishment under Article 237 of the Constitution of Kenya in 2010, was for long, since its establishment in 1967, merely a staffing unit of the MoE. The re-establishment of the Commission under the Constitution of Kenya, 2010, enhanced the teacher education functions, as managed by the TSC, to not only include recruitment and deployment but also professional development. Furthermore, the Teachers Service Commission Act, 2012, extended the functions of the Commission, empowering it to formulate policies to achieve its mandate; ensure that teachers comply with the teaching standards prescribed by the Commission; and facilitate career progression and professional development for teachers in the teaching service, among other duties.

As part of its mandate, the Commission now requires that continuing teachers undergo refresher courses to upgrade their knowledge and skills and that new teachers undertake professional courses within three years of employment. This mandate is backed by policies that support TPD in Kenya. The most prominent of these is the Teachers Service Commission Act, 2012, which provides for the establishment and functions of the TSC, including the regulation of the employment, conditions of service and training of teachers. The Commission is responsible for ensuring that teachers receive continuous professional development opportunities to improve

their skills and knowledge. Additionally, the MoE has developed various programmes and initiatives to support TPD, such as in-service training, workshops and mentorship programmes. During the 2020 COVID-19 pandemic, teachers were required by their employers to devise innovative ways of engaging with their learners. Unfortunately, more than 95% of the teachers belonged to the group that was unable to participate in remote learning because of inadequate technological capabilities. Increasing a teacher's capacity to continually engage learners inside and outside the classroom walls requires that the teacher be trained in "remote learning methodologies". This led to the development of "The remote learning manual", designed to help teachers acquire technological skills and promote interpersonal skills (e.g., active listening, presentation etc.).

The Constitution of Kenya 2010, which provides for education as a human right in article 53(1)(b), states that every child has a right to free and compulsory basic education. In addition, article 55(a) states that the State shall take measures, including affirmative action programmes, to ensure that the youth accesses relevant education and training. The Basic Education Act, 2013, provides for free and compulsory basic education for all learners (Republic of Kenya, 2013). This Act provides the framework for the delivery of basic education in Kenya and emphasises the importance of professional development for teachers.

The need and wish that the MoE would implement digital learning in schools has increased in recent years. The introduction of the CBC at the primary school level is a response to this need. The CBC called for significant integration of digital technologies, and the government rolled out the Digital Literacy Project (DLP) in all public primary schools in Kenya, which includes the provision of pupils' tablets, teachers' platforms, digital content, and projectors. Over 90% of schools have also been connected to electricity. The Ministry also provides computers to secondary schools to support the integration of ICT in teaching and learning. Despite this progress, several challenges have hindered the use of the devices at schools. The challenges and opportunities of implementing ICT policies in teacher training in Kenya have been documented over the years. One study reported that there was a differential understanding and interpretation of policy regarding the place of ICT in teacher education (Ogange, 2011). Despite the exposure to ICT training programmes and the availability of computers in various institutions and national

curricula, the report established that teacher educators' and teachers' practices in subject teaching and TPD did not reflect the policy provisions of ICT pedagogic practice.

Two of the most critical challenges are teacher skills and digital content. This is underscored by a study that sought to find out the influence teacher self-efficacy in technology had on the adoption of ICT in teaching and learning. This study deduced that whereas most teachers in the study area were computer literate, most were only moderately competent and confident in the application of ICT in their teaching profession. This, coupled with a negative attitude among a considerable number of teachers, curtailed the effective integration of ICT in teaching and learning. However, the study concluded that teachers' self-efficacy in technology did have a significant influence on ICT integration in teaching and learning (Gacicio, 2022). The government is addressing these challenges through in-service training of existing teachers and purchasing of additional digital content to facilitate learning in teacher training to coincide with the changes in basic education.

This positions ODL and TEL as key enablers in the TSC's commitment to entrench professional development in Kenyan teachers to improve the quality of teaching and learning in the country. This study shed more light on the current state of ODL in pre-service and in-service teacher training and professional development in Kenya. It also addressed the question of whether the policies available align changes in the education sector with teacher training in Kenya.

1.4 Rationale for the study

This study was designed to inform national capacity-building and policy development on ODL and TEL in pre-service and in-service teacher training and professional development in Kenya. The outcome of the study contributed to policy dialogue and deliberations for empowering educators and education leaders in Kenya to be able to make evidence-based policy decisions for quality pre-service and in-service teacher training, gain access to learning resources, and evolve contextualised open, distance and technology-enabled learning options for pre-service and in-service programmes. The report can also be used as a reference point for strengthening the capacity of teacher training institutions in ODL and TEL to train enough teachers to meet the country's needs.

The study addressed the following questions:

- a. Policies and frameworks: How are pre-service and in-service teacher training in Kenya structured? What policies and frameworks guide both pre-service and in-service teacher training in the country? What policies exist in the country that guide TPD?
- b. Resources: In what ways have teacher training institutions in Kenya used OER/MOOCs in pre-service and in-service teacher training? What are the emerging policy issues in the country regarding ODL, OER, MOOCs and technology-enabled learning in teacher training?
- c. Teacher and teaching institutions' data: Which are the teacher training institutions in Kenya? How is ODL currently being used in these institutions, if at all? What is the status in terms of teachers trained and the number of trained teachers required in the country? How is the teacher management information system (TMIS) used for decision-making in teacher training in the country?

1.5 Study objectives

The study objectives were as follows:

- i. to establish the pre-service and in-service teacher training structure in Kenya as per extant policies and frameworks and the emerging policy issues thereof
- ii. to examine the adoption of ODL, OER, MOOCs and technology-enabled learning in pre-service and in-service teacher training in Kenya and build a policy profile on ODL and TEL in teacher training
- iii. to map out the teacher training institutions in Kenya, determine the current status in terms of teachers trained and the number of trained teachers required in the country, and assess the use of the TMIS for decision-making in teacher training in Kenya.

1.6 Methodology

To sufficiently address the proposed objectives, the mixed methodology approach, which integrates aspects of both qualitative and quantitative methodologies, was adopted. Qualitative research involves collecting and analysing non-numerical data to understand concepts, opinions

or experiences; quantitative methods emphasise objective measurements and the statistical, mathematical, or numerical analysis of the data collected (Babbie, 2010). In this regard, the present study set out to gather both primary and secondary data, both qualitative and quantitative in nature. Collis and Hussey (2009) define primary data as information that has been generated by the researcher through surveys and interviews to understand and solve the research problem at hand; on the other hand, secondary data involves information that is already documented, having been collected through primary sources and made readily available for researchers to use for their own research.

To obtain primary data, unstructured key informant interview guides were used in the present study (see Annexure 1). These contained open-ended questions to allow for in-depth feedback. Key informants were purposely drawn from government institutions mandated to regulate teacher training at various levels, including policy formulation, curriculum development, recruitment and the practice of training teachers. The study sample thus included the Chief Executive Officer (CEO) of the TSC, the CEO of KICD, the Director of Policy and Strategy in the MoE, and two chief principals from both private and public accredited TTCs in Kenya. The latter were drawn from two of the oldest TTCs in both categories to observe the historic transition of policies and practices in open, distance and technology-enabled learning in teacher training in the country as experienced by these institutions. The foregoing key informants were purposely selected owing to their presumed conversance with pre-service and in-service teacher training in Kenya, serving in key decision-making positions as they did. The primary data from the unstructured interviews were complemented and triangulated by secondary data sourced from a desktop review of pertinent policy documents and frameworks.

The researcher anticipated that the type of data collected from the aforementioned data sources would be both qualitative and quantitative, warranting a mixed-method approach to data analysis. To analyse the quantitative data, descriptive statistics were employed with a view to articulating the basic characteristics of the data and presenting summaries as guided by the study objectives. According to Bryman (2004), descriptive statistics involve the calculation of means, percentages, frequencies and standard deviations. Frequencies were employed to describe

nominal data based on their occurrence in absolute terms, while percentages were used to describe nominal data based on their occurrence in relative terms.

To analyse the qualitative data, which were sourced mostly from both the key informant interviews and the policy documents, the thematic content analysis technique was used. Creswell (2013) defines thematic content analysis as a tool for data analysis to establish the presence of particular concepts, themes and/or words in unstructured and semi-structured interviews and questionnaires as well as in documentary evidence. Accordingly, the researcher first transcribed the key informant interviews and utilised the policy documentation guide to identify pertinent themes, words and phrases as guided by the study objectives. The researcher then assigned codes to the themes and developed theme indexing in a code book for use throughout the data analysis process. Key informants were also assigned codes to avoid personal identifiers, in line with ethical considerations. The researcher then combined the themes, as appropriate, in line with the study objectives, then determined any associations or patterns. Inferences were then drawn from the established themes and associations as guided by the study objectives.

1.7 Outline

The report is structured into five chapters. The introductory chapter builds the case for the study, presenting conceptual arguments around open, distance and technology-enabled learning in pre-service and in-service teacher training. These are placed within the Kenyan context, covering the demographics, needs, priorities and SDGs. The chapter also explores the education system in Kenya, covering, among others, the status in terms of the gross enrolment ratio (GER) in primary and secondary education, teacher-pupil ratio, and the need for trained teachers for quality education. The rationale of the study is also presented, leading to the research questions and objectives of the study. The chapter also details the methodologies and techniques that were employed in the study.

The second chapter delves into pre-service and in-service teacher training in Kenya, in which policies and frameworks as it pertains to teacher training, teacher qualification and licensing and the emerging policy issues in this regard are explored.

The third chapter covers resource availability for teacher development in Kenya, in which the adoption of ODL, OER, MOOCs and TEL in pre-service and in-service teacher training in Kenya is explored. To this end, the chapter includes examples, models and extant resources in ODL, OER, MOOCs and TEL in teacher training. A policy profile is then built on ODL and TEL in teacher training in the country.

The fourth chapter explores the decision-making process on teacher training policies, including how the TMIS is used. It specifically delves into the centralisation of the system and avenues for decentralisation; its use in decision-making for pre-service teacher training and TPD; how often the records are updated; and how an interactive teacher database can help promote resource and data sharing as well as policy development in the country.

The fifth chapter highlights the various policy gaps revealed by the study related to policies and practices in ODL/TEL/OER/MOOCs in teacher training in Kenya. It then proposes key insights and potential policy interventions in ODL and TEL in teacher training and professional development.

Chapter 2: Pre-Service and In-Service Teacher Training Policy in Kenya

2.1 Introduction

Occasioned by the need to realign teacher training to match the human capital development requirement espoused by the Kenya Vision 2030, the MoE and the TSC have, over the years, implemented a number of policies and frameworks aimed at guiding both pre-service and in-service teacher training in the country. In this regard, teacher training is defined as a process that involves education policies designed to equip prospective teachers with professional, pedagogical and social competencies, as well as the application of appropriate teaching and learning resource materials required for teaching activities (Cochran-Smith et al., 2015).

UNESCO (2009) categorises teacher training as follows: pre-service and in-service. Pre-service teacher training is also known as *initial teacher education* and entails the approved and organised private and public educational programmes designed to train future teachers to formally enter the profession at a specified level of education. Graduates receive a government-recognised teaching qualification. In-service teacher training, on the other hand, involves the process by which teachers engage in further education or training to refresh or upgrade their professional knowledge, skills and practices in the course of their employment (Shohel & Banks, 2019).

It is implied from the foregoing definitions that the underpinnings of making and nurturing quality teachers include both initial teacher education (pre-service) and TPD (in-service) (Kijana, 2016). According to UNESCO (2018), a broad view of the teaching profession considers pre- and in-service teacher training and other interlinked policy aspects such as mechanisms for selection, hiring, promotion, and sometimes firing teachers; standards and expectations of teacher performance; salaries and incentives; as well as evaluation and accountability. This chapter thus delves into pre-service and in-service teacher training policies in Kenya, in which policies and frameworks pertaining to teacher training and professional development are explored.

2.2 Overview of pre-service and in-service teacher training in Kenya

The MoE is, at the headquarters level, responsible for policy formulation, policy review, supervision and implementation regarding all sectors in the MoE, including pre-service teacher training and management.⁶ For instance, when reviewing the curriculum from 8-4-4 to 2-6-6-3, there was a policy shift. In this regard, one of the responsibilities of the Ministry was to review the policy governing 8-4-4. The Ministry further guides the implementation of the curriculum through the KICD.⁷ Along with the Ministry, the main stakeholders involved in the formulation of pertinent pre-service teacher training policies in the country include the TSC, development partners, the directorate in charge of teacher management, KICD, who are responsible for reviewing content, time and syllabus, as well as other sister departments such as universities, TVET institutions, KEMI and KISE. The MoE may, at its discretion, widen the circle of stakeholders to include teacher associations and civil society.

The Ministry's current policy priorities on pre-service and in-service teacher training in Kenya include catering for JSS by addressing problems with teacher capacity, numbers and its management, particularly where to domicile it. As part of the measures put in place by the Ministry to address the structural changes occasioned by the new CBC curriculum and JSS, the MoE has first domiciled JSS in primary schools for an interim period of one year as they await directions from the Presidential Working Party on Education Reforms. The Ministry has also intervened in the subsequent teacher shortage by sending a single JSS teacher to every public primary school where it is currently domiciled. To get the teacher numbers ready to accommodate JSS across the country, the Ministry is trying to build capacity by inducting the current 8-4-4 teachers who are inclined to be compliant to teach at JSS in the interim, as well as conducting an intake of pre-service (JSS training) teachers. Currently, therefore, there is a double intake of both pre-service and current 8-4-4 system teachers. The Ministry has also presented the implementation guidelines for JSS by, among others, advising schools on sharing infrastructure and other resources such as fields, laboratories and equipment.

⁶ Interview with Key Informant 2 held on 2 May 2023 through a virtual meeting.

⁷ Interview with Key Informant 3 held on 16 May 2023 through a virtual meeting.

To ensure that pre-service and in-service teacher training in Kenya measures up to the increased enrolment rates, occasioned by the 100% transition strategy from primary to secondary schools and the registration of new schools, the Ministry has put in place a number of measures. These include the removal of all admission requirements. Any child is allowed to move back to their respective former schools where they were the year before in Grade 6. This is meant to ensure that no child is denied the opportunity to join junior secondary. The MoE has also published admission guidelines detailing the fees the government is paying (100%) for public schools. School uniforms are also not a requirement for admission. A child can go to a school with the uniform of the school they attended previously and can continue learning until they are ready to get the new uniform.

Occasioned by teacher inadequacy owing to the new subjects under JSS, the Ministry has indicated that the primary 8-4-4 teachers may continue teaching at JSS as they await adequate staffing from the TSC, in addition to adequate capacity building for the continuing teachers. The MoE is also building the capacity of TTCs to improve their ICT and incorporate ICT when training teacher trainees. To this effect, there is a programme called the Kenya Primary Education Equity Learning (KPEEL) Programme (sponsored by the World Bank) in which all tutors are currently undergoing capacity building in ICT compliance to teach teacher trainees about online learning and teaching, and how they can prepare their lessons online and present to pupils online.

Pre-service teacher training in Kenya is under the purview of the MoE through TTCs at the diploma level and universities at the degree level. While the TSC is not involved in pre-service teacher training, the Commission is mandated by the Constitution to advise the national government. While only playing an advisory role in pre-service training, the TSC, as a major employer, is instrumental in shaping pre-service teacher training by helping both TTCs and universities align their training with the market requirements.⁸ One of the pre-service teacher training requirements by the TSC is that trained teachers must do at least eight units in their

⁸ Interview with Key Informant 1 held on 10 May 2023 at the TSC Headquarters, Nairobi, Kenya.

teaching subject areas. The entry requirements for teachers at university are agreed upon between the universities and the TSC. However, for TTCs, the MoE determines them, sometimes with no proper consultation with the TSC.

In-service teacher training in Kenya falls within the mandate of the TSC, which was established under Article 237(2) of the Constitution of Kenya (2010), to discharge several functions pertaining to teacher training and management. These include registration of trained teachers; recruitment and employment of registered teachers; assigning teachers employed by the Commission for service in any public school or institution; promotion and transfer of teachers; disciplinary control over teachers; termination of the employment of teachers; reviewing the standards of education and training of persons entering the teaching service; reviewing the demand for and supply of teachers; and advising the national government on matters relating to the teaching profession.

To address the structural changes occasioned by the new CBC curriculum in in-service teacher training in Kenya, the TSC has put in place a number of measures. Public stakeholder engagements have been held after realising that the structure itself is changing along with the workload for teachers. The Commission has embarked on policy reforms on teacher engagement and utilisation that have so far been presented to its stakeholders. This is after realising that the new curriculum needs an overhaul of policies in all areas for effective implementation. Capacity building for the teachers of CBC is also ongoing and mainly entails retooling teachers on the methodology of delivering CBC, as the content has largely remained the same. The TSC also recognises that more sensitisation on change management needs to be done to properly address the change in the new curriculum.

Teacher training in the country is provided to meet the demands of four levels of education: pre-primary, primary, secondary, and tertiary level. The institutes offering training for these levels include EYE centres, TTCs, and universities.⁹ Pre-primary and primary teacher training courses focus on pedagogy and subject knowledge content. Secondary teacher training courses are

⁹ Interview with Key Informant 3 held on 16 May 2023 through a virtual meeting.

provided in two models: consecutive and concurrent models. In the consecutive model, the trainees undertake the subject area first and graduate with either a Bachelor of Arts or a Bachelor of Science degree and later undertake a nine-month postgraduate diploma to qualify as trained teachers. In the concurrent model, the trainees study both the subject area and pedagogy simultaneously and graduate with a Bachelor of Education. Both the pre-primary and primary certificate and diploma awards are examined by the Kenya National Examinations Council (KNEC), while the degrees are awarded by the respective universities (Onyango et al., 2022). The training of Technical, Industrial, Vocational and Entrepreneurship Training (TIVET) teachers and trainers is spread across different TIVET institutions, TTCs and universities, depending on the level of training.

Early years education (EYE) teacher training in Kenya takes a duration of 18 months at the certificate level, three years at the diploma level, and four years for a bachelor's degree (Republic of Kenya, 2018). It is designed to enable teacher trainees to acquire the requisite knowledge, skills and attitudes to enable them to understand the growth and development of children and to identify, develop and utilise resources or instruction in teaching and learning. It is also fashioned to enable trainees to learn how to promote children's health and nutritional needs; to acquire relevant pedagogical skills necessary for EYE; and to acquire necessary skills to relate with the local and international community to promote EYE.

Primary teacher training is a two-year programme offered at TTCs (Kenya National Qualification Regulations, 2018). It is designed to develop the basic theoretical and practical knowledge about the teaching profession so that teachers' attitudes and abilities be turned towards professional commitment and competence. It is also designed to develop awareness of the principles of good human relationships in dealing with children and the community. It is further aimed at developing teachers' ability to communicate effectively; to create national consciousness in every teacher; and to promote awareness and appreciation of the role of technology in national development.

Secondary teacher education is a four-year bachelor's degree programme at universities. At the end of the programme, the student is expected to have acquired skills, knowledge, values, attitudes and concepts of EYE; explore issues and trends in the development of EYE; analyse the

justifications for investing in EYE; explore ways of establishing links with the local communities and other stakeholders of EYE; and conduct research on EYE. The duration of diploma teacher training is three years and is offered at both TTCs and universities. It is designed to train teachers to effectively teach/train students in high school or tertiary teacher college or equivalent. It is examined by the KNEC, with practical teaching being undertaken for two terms. To be awarded a diploma certificate in teaching, the candidate should have successfully completed practical teaching.

Continuous professional development of teachers is conducted by various institutions accredited by the TSC to conduct in-service training for both secondary and primary school teachers. These include the KEMI, KISE, KICD and the Centre for Mathematics, Science and Technology Education in Africa (CEMASTE), as well as selected universities, including Mount Kenya University, Kenyatta University, and Riara University. These entities train teachers on the adoption of the learner-centred teaching approach and integration of ICT in teaching and learning with the aim of increasing learner participation in class. Other forms of in-service training are sponsored at the school level through workshops and mostly target novice teachers who are required to develop pedagogical competencies at the subject level. Most professional development trainings are conducted at educational institutions during school holidays (Wambugu et al., 2019).

There are 36 private primary TTCs and 25 public primary TTCs in Kenya. The public diploma TTCs train 1,340 teachers per year in a three-year teacher education programme. EYE teachers are trained mainly through an in-service programme at the certificate and diploma level (Ngwacho, 2019). On an annual basis, 10,000 teachers are trained at the certificate level, while 12,000 are trained at the diploma level. KISE trains 240 certificate and 1,800 diploma teachers in special needs education (SNE) annually. Similarly, universities offer teacher training in EYE and SNE at various levels, with about 7,000 teachers across levels graduating annually (Republic of Kenya, 2019). Universities, both public and private, offer education degree programmes in various disciplines through various modes, such as distance education, school-based and regular programmes producing graduate teachers in science and the arts. Even though the services of

these teachers are required, the TSC is not able to absorb all trained teachers because of budgetary constraints and skills mismatch.

Interviews with both the CEO of the TSC and the Director of Policy and Planning in the MoE revealed that the accredited TTCs and universities in Kenya are varyingly equipped to deliver on pre-service and in-service teacher training guidelines by the TSC, using ODL/TEL. It emerged that while most universities have ODL programmes in place, most TTCs are, on the contrary, poorly equipped to use technology in training. They are, however, up to date with guidelines to guide the process from the TSC, which are collaboratively designed with them. The MoE has tried to provide equipment to colleges, so they are now operating at a capacity of around 30–40% in terms of teacher/learner access.

2.3 Pre-service and in-service teacher training policies in Kenya

This section reviews policies and frameworks aimed at guiding both pre-service and in-service teacher training in the country. These include Sessional Paper No. 14 of 2012 (Republic of Kenya, 2012); Code of Regulations for Teachers (TSC, 2015); Sessional Paper No. 1 of 2019 (Republic of Kenya, 2019); Career Progression Guidelines for Teachers (TSC, 2018); Kenya National Qualification Regulations (2018); National Pre-Primary Education Policy Standard Guidelines (Republic of Kenya, 2018); Policy on Mentorship and Coaching in The Teaching Service (TSC, 2020); Teacher Recruitment and Selection Policy (TSC, 2019); and the TPD programme. These are reviewed chronologically.

2.3.1 Sessional Paper No. 14 of 2012 on Reforming Education and Training Sectors in Kenya

Sessional Paper No. 14 of 2012 (Republic of Kenya, 2012) on reforming education and training sectors in Kenya was advanced by the MoE and the Ministry of Higher Education, Science and Technology. The overall aim of the policy was to align teacher training and management structures and practices with the Constitution of Kenya 2010 as well as the aspirations set forth in the Kenya Vision 2030. ODL approaches to education focus on expanding access, quality and equity to education and, as such, can address the demands of education as stipulated in the Constitution of Kenya 2010 and the aspirations of the Kenya Vision 2030.

The policy document observes that although there is mention of ODL in its predecessor (Sessional Paper no. 1 of 2005), the government lacks a policy on ODL. There is also an absence of ODL approaches in primary and secondary school education in Kenya, especially in areas where physical, socioeconomic and time factors hinder the delivery and access of education in the traditional way. Some parts of the country are not covered by mainstream electronic media because of the absence of infrastructure, thereby raising further issues of ensuring equity of access. There is also little awareness among education recipients and providers of the value of ODL, or of its viability in delivering quality education.

To address these challenges, the policy document proposes that the government adopt ODL approaches, including home learning across all levels of education in Kenya. To implement this policy, the government would employ the following strategies:

- i. Develop and implement an overall ODL policy, including incorporating a legal framework.
- ii. Mainstream ODL in the education system in Kenya.
- iii. Initiate the development of ODL approaches to meet the educational needs of e-learners, online learners and distance learning students at all levels of education and in ASAL areas, pastoral communities, marginalised groups, SNE and non-formal education.
- iv. Develop a regulatory and legal framework for all institutions to enable them to establish open learning opportunities.
- v. Establish partnerships with ODL providers at national and international levels.
- vi. Provide capacity for teachers' education managers; evaluate the outcomes of the actions to determine efficacy and effectiveness of ODL, especially e-learning programmes.
- vii. Establish an ODL broadcasting station, possibly at the proposed national ICT in Education Centre (ICTEC) for the purpose of transmitting ODL programmes to all areas of the country.
- viii. Design a framework that will ensure affordable allocation of airtime for the promotion of ODL programmes.
- ix. Enhance the development and dissemination of educational content through the education channel at the curriculum development centre. Fully equip the proposed ODL satellite centres with the necessary resources and other ICT facilities.

- x. Mobilise funds for the launching of educational broadcasting services with outreach to all areas of the country.

2.3.2 Code of Regulations for Teachers (Amendment), 2016

Legal Notice No. 50 of 2016 on the TSC Code of Regulations for Teachers (Amendment) provides for the pre-service requirements for registration as a teacher. The policy particularly provides the minimum academic and professional requirements for registration of teachers of various grades, including Bachelor of Arts/Bachelor of Science; Bachelor of Education; Diploma in Education for learners with visual and hearing impairments; Diploma in Education; PTE; and EYE. Regulation 48 of the policy stipulates that every teacher shall undertake the professional teacher development programmes prescribed or recommended by the Commission from time to time.

The Commission shall also approve training institutions to conduct teacher development programmes. The approved institutions shall further issue certificates to teachers upon completion of the programme. In Regulation 49, it is stated that every teacher who successfully completes a professional teacher development programme under Regulation 48 shall be issued with a teaching certificate by the Commission in the manner prescribed under the Ninth Schedule. A certificate issued under this regulation shall indicate the effective date and shall be valid for five years or such other period as may be prescribed by the Commission.

2.3.3 Career Progression Guidelines for Teachers, 2018

The Career Guidelines provide for entry requirements into the teaching service, promotion and capacity building of teachers (TSC, 2018). These Guidelines are applicable to teachers serving at the following public institutions: primary schools; secondary schools; TVET institutions; TTCs; KISE; CEMASTEIA; and special needs institutions, whether primary, secondary, and TVET.

The Guidelines have been developed to guide the career growth of teachers in the employment of the Commission. They are to guide the recruitment, retention, development, training and promotion of teachers to ensure they meet the set standards. Potential employees and teachers in service will know well in advance what they require to join the service and progress in their careers. The Guidelines further outline the skills and competencies necessary for advancement in

the profession. The Guidelines replace the Schemes of Service for the Teaching Service, 2005. It was necessary to review the provisions of the Schemes of Service to incorporate the results of the Job Evaluation undertaken in 2016 and capture various changes necessitated by the policies that the Commission has put in place. Implementation of the Guidelines is expected to improve staff motivation and retention. It will also enable the design of targeted training programmes that address competency gaps identified from the performance of teachers.

In developing the Guidelines, the TSC was guided by the provisions of the Code of Regulations for Teachers (2015) and the Kenya National Qualifications Framework (2018). The Guidelines outline basic job descriptions, personal qualities and core competencies required for each job and set out the minimum entry requirements for the teaching profession. Under the Guidelines, the career path for school administrators has been clearly outlined. This separates the career paths of school administrators and classroom teachers. This is designed to provide clear reporting structures in institutions and eliminate overlap in the grading structure. The deliverables expected of each cadre of teachers have also been clearly set out. This is expected to facilitate the setting of performance targets and accurate measurement of performance. Ultimately, the implementation of the Career Progression Guidelines is expected to improve the management of teachers in the employment of the Commission.

The Guidelines link a teacher's career progression to their performance and professional conduct. To this end, they establish an important strategy that incorporates best practices in teacher management. Promotion is one of the areas covered in the Guidelines. Under the Guidelines, the promotion of teachers/lecturers is subject to a number of conditions, including the existence of funded vacancies in the approved establishment; minimum qualifications per grade; relevant TPD modules; relevant experience; and satisfactory performance. According to the policy, the promotion of teachers is done in three different ways: promotion on common cadre establishment; promotion through the Teacher Proficiency Course (TPC); and promotion through competitive selection.

Promotion on common cadre establishment applies to a category of teachers who may move from one job group to another without the need for a competitive selection process or availability of vacancies, provided they meet the minimum qualifications for the grade. This involves

teachers in Job Group J (C1), K (C2) and L (C3). Promotion from Job Group J to K and K to L is done after three years of satisfactory performance. In considering the promotion of a teacher under the common cadre establishment, the TSC considers the following minimum conditions: period of time served by the teacher in a given grade (usually three years); validity of the teacher's teaching certificate; and the teacher's performance of duty.

Promotion through the TPC covered non-graduate teachers in Job Groups G (B5) and H (C1), who had to undertake a TPC. This has since become defunct. Promotion of teachers to Job Groups M (C4), N (C5), P (D1), Q (D2) and R (D3) is done through competitive selection. The Commission usually advertises these vacancies after some time (subject to availability of funds). Shortlisting of applicants is done at the TSC headquarters. Names of shortlisted candidates for Job Groups M and N and guidelines are then forwarded to County Directors and Regional Coordinators who conduct the interviews at the county and regional levels, respectively. The Commission may refuse to consider a teacher for promotion if the teacher has not completed two (2) years from the date they were pronounced guilty following disciplinary action; or one (1) year from the date they were issued with an administrative warning.

2.3.4 Kenya National Qualifications Regulations, 2018

The Kenya National Qualifications Regulations, 2018, are based on the premise that there is a need to standardise and harmonise the country's qualifications by putting in place a system of evaluating standards defining expected knowledge, skills and understanding needed for the labour market, self-employment or further education within Kenyan education and training institutions. Under regulation 20(1), it is provided that a person shall be eligible to be registered as a teacher if the person is of good moral character; holds relevant academic and professional qualifications from a training institution licensed in Kenya; and meets the requirements for registration set by the Commission from time to time. It proceeds to detail the pre-service qualifications for various categories of teachers, including EYE teachers (20(2)); primary teacher education (PTE) P1 teachers (20(3)); diploma teachers (20(3)); visual and hearing-impaired teachers (20(4)); technical teachers (20(6)); and graduate teachers (20(7)). These are presented in detail in Table 1.

Table 1: Pre-service qualifications for teachers in Kenya

Teacher category	Requirements	Duration
Early years education teacher	<ul style="list-style-type: none"> – A Certificate of Primary Education (CPE) with 15 points – A Kenya Certificate of Primary Education (KCPE) with 30 marks – A Kenya Certificate of Secondary Education (KCSE) – A certificate in Early Years Education from an institution licensed in Kenya – Any other recognised equivalent qualification 	<ul style="list-style-type: none"> – Certificate (18 months) – Diploma (3 years) – Bachelor’s degree (4 years)
Primary education teacher	<ul style="list-style-type: none"> – Certificate in Primary Teacher Education – A minimum mean Grade C (Plain) or its equivalent in Kenya Certificate of Secondary Education – A minimum of Grade D (Plain) or its equivalent in Mathematics in Kenya Certificate of Secondary Education – A minimum Grade C- (Minus) or its equivalent in 	Diploma (3 years)

Teacher category	Requirements	Duration
	English in Kenya Certificate of Secondary Education	
Diploma teacher	<ul style="list-style-type: none"> <li data-bbox="573 369 987 674">– A Diploma Certificate in Education; obtains a minimum mean Grade C+ (Plus) or its equivalent in Kenya Certificate of Secondary Education <li data-bbox="573 695 987 947">– A minimum of Grade C+ (Plus) or its equivalent in the two teaching subjects in Kenya Certificate of Secondary Education <li data-bbox="573 968 987 1167">– A minimum Grade C- (Minus) or its equivalent in English in Kenya Certificate of Secondary Education <li data-bbox="573 1188 987 1440">– A minimum Grade C (Plain) or its equivalent for science-based course in Kenya Certificate of Secondary Education <li data-bbox="573 1461 987 1766">– A minimum of Grade D+ (Plus) or its equivalent for non-science-based course in Kenya Certificate of Secondary Education (KCSE) 	Diploma (3 years)

Teacher category	Requirements	Duration
Diploma in Education for learners with visual and hearing impairments	<ul style="list-style-type: none"> – Minimum Grade C (Plain) in KCSE and above – At least C Minus in English – C- (Minus) in Mathematics for science-based courses – D (Plain) in Mathematics in non-science-based courses 	Diploma (3 years)
Graduate teacher	<ul style="list-style-type: none"> – A bachelor’s degree in education; C+ in KCSE in the two teaching subjects – A Bachelor of Arts degree or a Bachelor of Science degree – A postgraduate Diploma in Education with a C+ in KCSE in the two teaching subjects 	Bachelor’s degree (4 years)

2.3.5 National Pre-Primary Education Policy Standard Guidelines, 2018

The National Pre-primary Education Policy Standard Guidelines (Republic of Kenya, 2018) provide specific standards on access; equity and inclusion; quality and relevance; governance and accountability; research, monitoring and evaluation (M&E); as well as financing and partnerships. Effective implementation of the guidelines would guarantee access to quality, equitable and inclusive services through enhanced financing and efficient management of pre-primary education. According to the policy, training of pre-primary schoolteachers shall only take place in registered TTCs. It further spells out the qualifications of trainers of pre-primary schoolteachers: a minimum qualification of Bachelor of Education in EYE; they have undertaken a professional development course from a recognised institution; they are computer literate; they have a valid certificate of good conduct; and they have a valid medical certificate.

The policy further states that pre-primary teachers shall be trained through in-service and pre-service modes and that the KNEC shall oversee the evaluation and certification of pre-primary schoolteachers. Pre-primary schoolteachers and trainers shall also continuously undergo refresher courses for skills improvement; and the MoE shall sensitise education officers, county governments, EYE officers, pre-primary teachers, and other stakeholders to new trends in pre-primary teachers' training curriculum. According to the policy, pre-primary teachers' training curriculum shall incorporate a component of Kenyan Sign Language (KSL), braille and other communication formats; the MoE shall facilitate the training of trainers and teachers in the Integrated Individualised Education Programme (IIEP); and accredited universities shall train pre-primary teacher trainers at degree level and above.

2.3.6 Sessional Paper No. 1 of 2019: A Policy Framework for Reforming Education and Training for Sustainable Development in Kenya

This Sessional Paper is based on the 2012 draft. Subsequently, the policy provisions embodied in this Paper are to address the constitutional requirements and national aspirations as well as offer direction in modernising and rebranding the country's education, training and research. The policy is, however, silent on teacher training at either the pre-service or in-service level.

2.3.7 Teacher Recruitment and Selection Policy, 2019

According to the Teacher Recruitment and Selection Policy, 2019, recruitment of teachers by the TSC is demand-driven and has been decentralised to the TSC county for primary schools and the Board of Management for post-primary institutions (TSC, 2019). The process of recruitment and selection involves first the Commission advertising available vacancies and interested candidates are required to submit application forms to the county/institutions where they wish to be considered for employment. Short-listed candidates are then invited to appear before the recruitment panel. Successful candidates fill out employment forms, after which agents submit completed forms and merit lists to the TSC headquarters. The Commission then vets the recruitment documents in accordance with the guidelines and informs the recruiting agents of the outcome of the vetting process. It also issues appointment letters to successful candidates. Failure to take up the appointment within the stipulated period automatically leads to the cancellation of the appointment. Aggrieved candidates may channel their grievances to the Commission within two weeks from the selection date.

2.3.8 Policy on Mentorship and Coaching in the Teaching Service, 2020

The Policy on Mentorship and Coaching in the Teaching Service, 2020, provides clear guidance on institutionalising the Mentorship and Coaching programme in the teaching service. It outlines the mechanism for the rollout and effective coordination at the national, regional, county and institutional levels. The teacher Mentorship and Coaching programme in the teaching service is a structured teacher support programme aimed at embracing preventive measures in managing teacher professional conduct and performance. The professional support activities developed are aimed at enhancing teacher competencies, knowledge and skills. It is formulated for newly recruited teachers, including those in internships, teachers in service with performance gaps, newly appointed institutional administrators, and those to be trained as mentors/coaches.

The programme is based on a flexible model that allows mentors/coaches/mentees to interact at the institutional level or within zone or cluster groups, while, at the same time, continuing to perform teaching services. Mentors are drawn from experienced registered teachers, successful professionals, state and non-state players, depending on the identified needs. The teacher mentee would be able to develop professional skills and competencies, practices and conduct, values and attitudes through experiential learning. The programme is in line with the TSC's reform agenda

and adoption of best practices in career development, professional conduct and performance management for efficient service delivery in the teaching service.

The programme is informed by the need to employ preventive strategies and a corrective approach to the management of teacher professional conduct and performance. The mentor facilitates the career and psychosocial development of a mentee by providing required professional support, which would help to prevent the occurrence of professional misconduct. This is expected to result in improved performance in the teaching service, leading to overall improved learning outcomes. Under the policy, the teacher management supervisors and institutional heads are trained as mentors/coaches to provide the needed support to the teachers. Mentorship and coaching are based on a participatory mode of learning and do not replace but supplement the role of immediate supervisors to provide on-the-job training and development. The policy provides a comprehensive framework to guide the institutionalisation and implementation of the programme. It was occasioned by the lack of a policy on the institutionalisation of Teacher Induction Mentorship and Coaching (TIMEC), which saw the practice focus only on the induction of newly recruited teachers, albeit in an unstructured and inconsistent manner.

2.3.9 Teacher Professional Development programme

The TSC has a statutory mandate through the enactment of TSC Act Cap 212, section 11(e) to facilitate the professional development of teachers. This is also in line with regulation 48 of the Code of Regulations for Teachers, which requires that teachers undertake prescribed professional development programmes to facilitate their career progression. The Commission, in its endeavour to achieve this objective, developed the TPD programme in the year 2021 (KEMI, 2021). This is a new module that requires public school teachers to renew their professional certificates every five years. Among the in-service teacher training requirements by the TSC are that teachers must be already in service and be registered with the TSC.

The programme involves lifelong teacher learning and comprises the full range of educational experiences designed to enrich teachers' professional knowledge, understanding and application of the concept throughout their teaching career. The overall objective of the TPD programme is to professionalise teaching by continuously developing and improving teachers' skills,

competencies and knowledge in line with the 21st-century core competencies aimed at enhancing the provision of quality education. All TPD programmes organised by the Commission or by accredited service providers are provided based on the seven (7) Kenya Professional Teaching Standards (KePTS). Below is a set of competency standards (Table 2) that describes what a Kenyan teacher should know and be able to do for improved learning outcomes.

Table 2: Kenya Professional Teaching Standards

Standard	Description
1	Teacher promotes professionalism through their career
2	Teacher has pedagogical content knowledge and understanding of competency-based curriculum and how to implement it
3	Teacher has knowledge of assessment and reporting
4	Teacher knows how to create and support inclusive education practices
5	Teacher knows and promotes comprehensive school health and safety
6	Teacher has knowledge of financial literacy skills
7	Teacher knows and practises instructional leadership

Source: TSC (2021)

The TPD is organised into six hierarchical competency levels corresponding to the competency level of teachers, with each level (module) taking five years to complete. A module is organised into five chapters and covers all seven KePTS standards. Teachers are expected to enrol and undertake a TPD programme in face-to-face sessions once a year during the school holidays. During the other two school holidays, teachers would undertake TPD through online platforms. The programme is designed to utilise innovative assessment strategies, including the use of reflective journals, participant-led final synthesis, and individual professional portfolio development and presentations. The Commission has so far accredited only four institutions – Mount Kenya University, Kenyatta University, Riara University, and KEMI – to implement the programme. Over 100,000 teachers have since enrolled among the four providers. Table 3 presents the six TPD hierarchical competency levels.

Table 3: TPD hierarchical competency levels

Level	Competence
1	Knowledge level on the standards
2	Application level
3	Mastery level
4	Mentorship and coaching
5	Instructional leadership
6	Mastery in instructional leadership

Source: TSC (2021)

To ensure quality in in-service teacher training in Kenya under TPD, the TSC first discontinued unnecessary teacher trainings that had been mounted and not regulated by introducing the TPD policy. The modules were prepared by a specialist contracted by the TSC to ensure quality of content. The Commission is also responsible for determining the contact hours/professionalism in training and employs quality assurance officers who monitor the trainings conducted by the service providers. TPD trainers are also recruited from renowned teacher training institutions with good standing to ensure quality of TPD. Further, the TSC had feedback sessions with the trained teachers to further improve the programme as well as to ensure knowledge transfer by the providers. There was also a post-training evaluation/assessment to gauge what the teachers had acquired.

Despite the well-structured approach and notable achievements made under the TPD programme, its future looks bleak. In an interview with the CEO of the TSC,¹⁰ it was revealed that TPD faces a number of challenges that threaten its sustainability. First, the uptake has been a challenge because of pushback by the teachers and their unions who should bear the training costs. While the government has promised to pay for teachers, its current focus/priority is, however, teacher shortage, hence it is unlikely to offer immediate support. There is also a lack of awareness on the

¹⁰ Interview with Key Informant 1 held on 10 May 2023 at the TSC Headquarters, Nairobi, Kenya.

part of the teachers regarding TPD and the importance of TPD or professionalising teaching as in other parts of the world. To address some of these challenges, the TSC is considering introducing a school-based approach to TPD, though it requires huge capital in terms of finances and human resources to actualise it. The contract with the four service providers expired in September 2023, and based on the foregoing challenges, it is unlikely that the TSC will renew it.

Chapter 3:

Resource Availability for Teacher Development in Kenya

3.1 Introduction

Teacher training and professional development in Kenya have traditionally been conducted physically by TSC-accredited educational institutions during holidays (Acquah, 2015). This has, however, been hampered by low attendance and quality challenges attributable to, among other issues, the optional nature of TPD programmes, teachers' busy holiday schedules, poor accessibility for teachers living in marginalised areas, and hard-to-reach people living far away from educational institutions. With increasing innovation in the education sector, however, coupled with growing internet penetration, countries in both advanced and developing economies are increasingly moving towards remote learning and teacher development (Shohel & Banks, 2019). This addresses the foregoing challenges by making teacher training and professional development accessible to teachers anywhere they are globally. Key among these innovative resources applicable to teacher training and professional development are ODL and such technology-enabled learning resources as massive online open courses (MOOCs) and open educational resources (OERs).

ODL consists of two concepts or domains – that is, open and distance learning – each of which has its own definition and origin (Bates, 2018). Distance education is any form of organised teaching and learning where student and teacher are physically separated and technology is used to bridge this physical and instructional gap. Open learning, on the other hand, is a vision of an educational system accessible to every individual with minimal restrictions. It emphasises the flexibility of the system to eradicate problems caused by barriers like age, geographical location, time constraints and economic situation (Pope, 2013). ODL provides an avenue through which technology-enabled learning resources – that is, MOOCs and OERs – can be utilised effectively for teacher development.

MOOCs are freely available short courses, delivered online, on a suitable platform. MOOCs are currently one of the latest educational revolutions – a trending concept in education that has proven to be a much-needed catalyst for the development of progressive programmes that

respond to the changing world. MOOCs, therefore, represent an untapped potential for TPD that may replace traditional educational courses (Suzannal & Myrick, 2015). MOOCs are still considered a relatively new form of online learning – one that was implemented to reach large numbers of online learning participants. MOOCs are designed for teachers in diverse contexts and at different education levels. The courses benefit those teaching face-to-face or in a distance/online environment (Pope, 2013).

OERs are learning, teaching and research materials in any format and medium that reside in the public domain or are under copyright that have been released under an open license that permits no-cost access, re-use, re-purpose, adaptation, and redistribution by others (Murphy & Wolfenden, 2013). Both MOOCs and OERs promise a great deal for low-resource environments, yet the uptake of opportunities in the Global South is low, and there remains a disconnect between the OER developer and the target user community (Ji & Cao, 2016).

This chapter explores how ODL and technology-enabled learning are implemented in both pre-service teacher training and TPD in Kenya. This includes how MOOCs have been used in pre-service teacher training in the country; the national/regional OER database for teachers; their functions; and how access levels are granted to teachers and teacher educators on these databases. Some international practices are then discussed, covering examples of teacher training using technologies, MOOCs and ODL in other countries.

3.2 Current status of ODL/TEL in Kenya

Currently, the concepts of ODL/TEL/OERs/MOOCs in both pre-service and in-service teacher training in Kenya are new.¹¹ Whereas there have been several attempts made at TEL, for instance, the Digital Literacy Programme, where over 75,000 teachers in public primary schools were trained in readiness for implementation of the project that aimed at introducing the use of technology in teaching at the primary level, its implementation lacked a capacity building and sustainability plan. While some teachers across the country highly embraced it, the project faced

¹¹ Interview with Key Informant 1 held on 10 May 2023 at the TSC Headquarters, Nairobi, Kenya.

resistance in some schools, with a considerable number of laptops distributed under the programme remaining unused 10 years later.

To help acclimatise teachers to use technology and solve the IT use pushback, the TSC has automated all its services for teachers. They are paperless and at a staggering 94% uptake. To some extent, this has forced teachers to be more interactive with technology and to learn more about TEL. On their part, while there are no policies governing the use of ODL/TEL in pre-service and in-service teacher training in Kenya, the MoE is currently assisting TTCs to ensure they have the right teaching ICT equipment for their trainees.¹² Through the KPEEL programme, the MoE plans to supply colleges' ICT labs with equipment, including smart boards, with a view to uplifting colleges' ability to teach their trainee teachers in a manner that would make them compliant with using ICT for teaching upon being posted.

The TSC has introduced the Teacher Performance Appraisal and Development (TPAD) portal, which has a performance standard on ICT in terms of integration. This is one of the tools used as a management instrument during interviews. A teacher who does not have TPAD may not be vetted in an interview. Further, during the Covid-19 period, the Commission published a remote learning module to train teachers on how to continue teaching using technology even after Covid-19. Furthermore, there is a collaborative project on livestreaming that the TSC has in collaboration with the World Bank. The project is named the Kenya Secondary Education Quality Improvement Project (SEQIP) and is aimed at improving student learning and transition from primary to secondary education in targeted areas. The project beneficiaries are about 600,000 pupils in upper primary and 600,000 students in secondary education from 17,500 and 8,500 primary and secondary schools, respectively. SEQIP has four components: a) improving the quality of teaching in targeted areas; b) improving retention in upper primary school and transition to secondary school in targeted areas; c) system reform support; d) project management, coordination and monitoring, and evaluation. These components will be implemented by the KICD, TSC, KNEC, and CEMASTEAM.

¹² Interview with Key Informant 2 held on 2 May 2023 through a virtual meeting.

A pilot training of facilitators or county trainers was conducted for Makueni, Machakos and Kajiado counties before being rolled out to other targeted counties. This training of facilitators/trainers drew teachers of Mathematics and Science from both the primary and secondary sections, who would, in turn, cascade the training in their various counties. As one of the outcomes of the project, many schools are using ICT for teaching. Examples include Othaya Girls, Buruburu girls and Nanyuki girls secondary schools, among others, who have formed a group of around 13 schools in central Nairobi and Rift Valley. The schools have started live-streaming sessions on selected subjects and days out of their own initiatives. If well-embraced at the school level, this would help a school with different streams to connect them simultaneously and reduce the need for more teachers.

Under the SEQIP, the TSC, in conjunction with CEMASTEIA and UoN launched a school-based teacher support system (SBTSS) on 20 February 2020. This was initiated for Science, Mathematics and English (SME) teachers, to be implemented in both primary and secondary schools in targeted counties. It is envisaged that, in the second year of the project, Phase 1 of the SBTSS will become operational in 2,000 primary schools and 500 secondary schools. This school-based teacher support is targeted at assisting teachers to improve their pedagogical and content knowledge. To start off, the SBTSS SME teachers from sampled schools in target counties were trained on inquiry-based learning using 5E instructional models and how to leverage virtual platforms for peer support in face-to-face training in February 2019.

3.3 ODL initiatives in Kenya

Sessional Paper No. 1 of 2005 on a Policy Framework for Education, Training and Research (Republic of Kenya, 2005) first recommended the establishment of a National Open University. While this has not been implemented to date, a number of universities in Kenya (both public and private) have embraced ODL. Some of the major providers include UoN, Kenyatta University, Egerton University, Maseno University, Masinde Muliro University of Science and Technology, JKUAT, Multimedia University of Kenya, and Moi University. This section reviews, as examples, some of the ODL programmes offered by public universities in the country.

3.3.1 UoN's Open, Distance and e-Learning Campus

UoN's ODeL Campus was established in 2015 to mainstream the integration of modern technologies into teaching and learning at the University (UoN, 2023). The main objective of the Campus is to provide enhanced access to quality education and training to students from Kenya and all over the world who meet the minimum admission requirements for specific undergraduate and postgraduate courses through the use of modern instructional content delivery techniques supported by skilled personnel. The specific mandate of the Campus is to support, guide and facilitate learners pursuing courses using open learning, distance learning, e-learning, blended learning, mobile learning, and short lifelong courses at UoN. The ODeL Campus is located at the main campus of UoN in the city of Nairobi, Kenya.

3.3.2 Kenyatta University School of Virtual and Open Learning

Kenyatta University School of Virtual and Open Learning seeks to provide learning opportunities to students who are unable to take up full-time on-campus programmes (Kenyatta University, 2023). The school provides a wide range of quality programmes at certificate, diploma and undergraduate levels using blended teaching and learning that combine both virtual and physical sessions.

3.3.3 JKUAT School of Open, Distance and e-Learning

JKUAT School of Open, Distance and e-Learning (SODEL) has three intakes in any given academic year – January, May and September (Jomo Kenyatta University of Agriculture and Technology [JKUAT], 2023). These intakes do admit candidates from certificate, diploma, bachelor's and master's courses. These courses run in two modes: continuing education and distance learning. Distance learning mode is applicable when prospective students wish to register for courses across the world but want to do it in a more convenient mode. This mode allows a student to register for a minimum of two units and a maximum of the total number required in a full-time session. Examinations are, as per the University exam, scheduled as follows: that is, April, August and December, with all exams done online. Most of the learning materials are downloadable from the university's learning management system, and they may be printed at students' cost. Each student is expected to undertake some online activities as guided by the module/unit facilitator. Assignments are also taken/submitted online.

3.3.4 Maseno University Postgraduate Diploma in Education e-Learning Programme

Maseno University Postgraduate Diploma in Education (PGDE) programme is a flexible online programme that allows untrained graduate teachers in secondary schools to professionalise their practice through on-the-job training and to take only sit-in, on-campus examinations for the modules taken during a particular semester. The programme, started in 2011, takes at least one academic year, divided into three residential sessions and three schools-based practicums. A candidate who may not fulfil all requirements in one year may request the Academic Board to allow them to complete the units missed the following year.

3.4 MOOCs

3.4.1 TESSA

The commonly accessed OER by teachers, student teachers and teacher educators in Kenya is TESSA, which ran from 2005 to 2022 (OER Africa, 2022). A consortium coordinated by the Open University United Kingdom (UK) created the TESSA OER, and its curriculum stretched across that of nations in Sub-Saharan Africa (SSA). TESSA's key objectives were to collaborate with the Open University UK and other international organisations to create a network of African universities that focuses on the education and training needs of teachers in SSA; support the development of school-based teacher education modules where teachers develop their competencies and skills to meet the needs of learners in their classrooms; and design and build a multilingual OER bank that is freely available to all teachers in the region and is modular and flexible in format. Since its inception in 2005, the initiative has evolved over three phases (Moon, 2010).

Phase one of the initiative ran from 2005 to 2010 and involved the Open University UK forming a consortium of 14 institutions across nine African countries in collaboration with international partners, including the Commonwealth of Learning (COL), the National Commission for College Education (NCCE), and Saide. TESSA's coordinators in each institution were supported by the project team as they worked to embed TESSA OER at their own institutions. Over this period, participants developed 75 adaptable OER units to support primary school teaching in Arabic, English, French, and Kiswahili. The TESSA units provided classroom activities, examples and resources that were contextualised for 10 African countries. They covered the primary

curriculum, as well as some examples of secondary science, and were collaboratively written by the consortium.

Phase two of the Programme ran from the year 2010 to 2015 and involved separately funded projects that worked to extend TESSA's impact and integrate TESSA OER into national teacher education programmes. The aim was to improve the quality of teacher education and the skills of pre-service and in-service teachers. In Kenya and Ghana, this included extending and embedding the use of TESSA materials in institutions, including universities, colleges and schools, and developing new materials (including TESSA Secondary Science, Teaching Practice Supervisors Toolkit and Inclusive Education Toolkit).

In the third phase (2015–2022), the initiative focused on raising awareness about TESSA and increasing engagement with TESSA materials. It also sought to improve the quality of learning and teaching in colleges of education and schools. Activities included expanding and improving the website and writing and conducting the TESSA MOOC for three cohorts. Each cohort consisted of predominantly teacher educators from universities, colleges of education, and ministry officials, but also included teachers and student teachers. In Kenya, the team is working to get TESSA OER on the Kenya Education Cloud (KEC) and working with COL and KISE to support inclusive education.

In Kenya, TESSA was implemented by KISE as an open and free professional development opportunity for teacher educators (to support teachers and teacher educators in developing more participatory approaches to teaching) (Wambugu, 2018). TESSA aimed at improving the classroom practices of primary teachers and secondary science teachers in the country through the provision of OERs to support teachers in developing student-centred, participatory approaches.

3.4.2 COL–KISE

As a follow-up to phase three of TESSA MOOC, COL supported the second run of MOOC on inclusive teaching and learning (ITL) from 5–30 September 2022 (Commonwealth of Learning,

2022).¹³ The four-week course on professional development in inclusive education practices is a critical element in ensuring learners with special education needs and disabilities are supported to achieve their full potential. The course was offered jointly with KISE and attracted 2,076 special education teachers from 38 countries, including 13 non-Commonwealth nations, with the highest number of registrants being from Nigeria, Kenya, India, Botswana, The Gambia, and Ghana. The ITL course was the first of a pair of professional development courses on inclusive education that drew on the UNICEF Wave Model for inclusive education. The Wave Model was developed in the UK and reflected the challenge schools were facing in meeting the different needs of children with disabilities.

3.4.3 Kenyan Cloud School

A Kenyan Cloud School (KCS) is a MOOC that contains all courses taught at the secondary school level in Kenya (Ngubane-Mokiwa, 2017). This MOOC consists of online, ongoing subjects in both English and Kiswahili. KCS subjects offer self-testing and peer assessment to maximise scalability and digital badges to show progress and completion to recognise and validate non-formal learning. A KCS uses the Moodle LMS with responsive web design to increase ubiquitous access from any device. Access is free and open, and a KCS intends to be a contextualised OER for formal secondary institutions to support blended learning and a free source of non-formal education for lifelong learning.

A Cloud School comes with various advanced features that help trainees run their school better while connecting with the students' parents. Some of these features include integration with banks and mobile money; accessible anywhere using any device; support for multiple campuses; support for multiple curricula; auto reminders for balances; automated fee receipting; and parents, teachers and students' portal. The Cloud School system is designed for everyone involved with the school, from administrators and staff to students and parents.

¹³ Commonwealth of Learning. (2022). COL MOOC on Inclusive Teaching and Learning attracts over 2,000 participants. <https://www.col.org/news/col-mooc-on-inclusive-teaching-and-learning-attracts-over-2000-participants/>

3.4.4 Kenya Education Cloud

KICD's OER Platform, Kenya Education Cloud (KEC), has availed OERs to its users. This content is sourced by KICD following its content acquisition processes that include thorough scrutiny of the content through its curation and approval process. KEC provides curated grade-wise digital content to teachers and learners, anywhere. The content on the platform is accessed for free and contains educational resources across six categories. These include EYE, comprising digital content for pre-primary and three years (Grade 1, Grade 2 and Grade 3) of lower primary school education; upper primary education comprising digital content for Grade 4, Standard 5, Standard 6, Standard 7, and Standard 8; secondary education comprising digital content for Form 1, Form 2, Form 3, and Form 4; a public digital library of OER; SNE that comprises adapted interactive digital content for learners with hearing impairment (HI) and visual impairment (VI), and accessible digital textbooks for all; accessible digital textbooks for learners with and without disabilities.

3.5 Model countries

3.5.1 MOOCs and OER in Rwanda

The Rwanda National Framework on MOOCs and OER proposes a training methodology to provide a context for staff development and the provision of ODeL capacity (Government of Rwanda, 2018). The framework provides a suggested training approach that would result in open products that can be used when offering ODeL and MOOC courses. To achieve this result, the framework outlines that training needs to be competency-based and not purely theoretical in nature. All capacity-building initiatives must produce real skills, and participants need opportunities to use these skills in support of designing, developing and deploying ODeL and MOOC courses. Therefore, whether the trained skill or knowledge is about curriculum design, courseware development, assessment, quality assurance, facilitation skills or M&E, participants need an opportunity to engage skills and knowledge in a real-world setting. Consequently, the training methodology for all seven skillsets should be coordinated so that the recipients use them to roll out actual study/training interventions.

The framework proposes a list of activities recommended to support the acquisition of ODeL, OER, and MOOC skills and knowledge. Because of different mandates and allocated training

budgets, the three institutions are anticipated to train predominately alone but, on occasion, come together when an external service provider has been secured to offer specialised training. These include a small coordinating entity made up of representatives from each of the four main institutions and possibly other interested parties tasked with coordinating the capacity building and development of ODeL and MOOC courseware; auditing of institutions to determine staff skills gaps in support of developing ODeL, MOOCs and OER; identifying available courses and materials for training; negotiating goals, targets and milestones; producing an officially sanctioned roadmap in which goals, targets and timelines are officially sanctioned by the highest authority; identifying technical platform(s); training to build; developing a curriculum for ODeL and MOOCs courses; building ODeL and MOOC courseware; finalising development and quality assurance of ODeL courses and MOOCs; and deploying and monitoring ODeL courses and skills of personnel involved.

3.5.2 ODeL in South Africa

South Africa is a model country regarding the uptake of ODeL in teacher education. In the country, ODL plays a critical role in teacher educational development (Ngubane-Mokiwa, 2017). Different ODL institutions in South Africa and on the African continent use a wide variety of modern and/or affordable technologies to facilitate the sharing of learning content with and among their geographically distant students. ODL in South Africa is characterised by the use of new Web 2.0 tools (Mbatha, 2014). The latter allows for more interaction between the lecturer and the students, the students and the learning environment, the student and fellow students, and the students and the institutions with which they are affiliated. This is different from the previous first, second and third correspondence models where the lecturer was the only constant link between the student and the learning environment (Anderson & Dron, 2011). In South Africa, three tutoring programmes are employed in teacher training using ODeL. These are the Science Foundation Programme (SFP), the Face-to-Face (F2F) programme, and the E-tutoring programme. Besides the F2F programme, which is based on the student and tutor interacting face to face, both the SFP and the E-tutoring programmes are presented electronically.

3.5.3 OER in Ghana

In Ghana, the University of Education, Winneba, implemented the TESSA OER by incorporating the innovation into some of the courses taught by the Department of Basic Education and organised workshops to introduce basic schoolteachers in the Effutu Municipality to the use of TESSA OER (Acquah, 2018). Studies conducted on the use of the TESSA OER units in the Effutu Municipality revealed a positive attitude by both student teachers and basic schoolteachers towards the use of the innovation. The teachers indicated that the TESSA OER units improved their ability to teach science, promoted learner-centred approaches to teaching, and enhanced pupils' science achievement. Further, the findings from the lesson notes analysed by Acquah and Nyaaba (2019) showed that the respondents who used the TESSA materials used them as reference material. This confirms Murphy and Wolfenden's (2013) assertion that the common OER use evidence by individual educators is made visible through lesson plans. In this study, all the respondents (users) integrated the activities found in the TESSA science modules with other materials (such as the textbooks and the syllabus).

3.5.4 ODL in Tanzania

The Open University of Tanzania (2023) became an established centre of specialisation for teacher and secondary education in Tanzania and established a knowledge management system that curated knowledge through a number of activities as follows: facilitated networking and collaboration among ODL practitioners from 2008 to date through the Distance Education Association of Southern Africa (DEASA) and Distance Education and Teachers' Training in Africa (DETA) conferences; supported ODL practitioners to undertake both short- and long-term training in ODL; built capacity of training of trainers in gender mainstreaming in ODL for 36 ODL practitioners; conducted regional training of trainers for M&E experts from the SADC Member States to track agreed indicators in the Regional ODL M&E Framework; developed gender mainstreaming guidelines for ODL programmes; and disseminated ODL Information, Education and Communication (IEC) materials to all SADC Member States.

Chapter 4: Teacher Data and Management

4.1 Introduction

Teacher management is a component of human resource management, defined as the search for the best possible match between human resources and the needs of an organisation in terms of quantity and quality (Anamuah-Mensah et al., 2018). Teachers are the main resource of any education system and require specific management. In this regard, UNESCO (2015) defines teacher management functions as including the following: recruitment; training and motivation of personnel; their deployment and the establishment of staffing norms; wage negotiations and organisation of pay; follow-up and evaluation of performance; planning of future needs; the development of communication systems; and making opportunities available for personal and professional development.

In Kenya, Sessional Paper No. 14 of 2012 on reforming education and training sectors in Kenya classifies teacher management into three main categories: entry, maintenance, and exit (Republic of Kenya, 2012). The entry component includes assurance of the right persons entering the teaching service, registration and recruitment of teachers, while maintenance entails deployment, remuneration, promotion, discipline and maintenance of teaching standards. Teacher exit entails the management of teachers who leave the Commission. The Commission is charged with the responsibility of managing teachers in public education institutions, excluding universities. The TSC was established to bring all teachers under one employer with harmonised terms and conditions of service.

Teacher management in Kenya is wholly under the mandate of the TSC, as per the Constitution of Kenya (2010), chapter 15, article 248. The specific management functions are to:

- i. Register trained teachers
- ii. Recruit and employ registered teachers
- iii. Assign teachers employed by the Commission for service in any public school or institution
- iv. Promote and transfer teachers
- v. Exercise disciplinary control over teachers

- vi. Terminate the employment of teachers
- vii. Review the standards of education and training of persons entering the teaching service
- viii. Review the demand for and the supply of teachers and advise the national government on matters relating to the teaching profession.

To aid in discharging these management functions, the TSC utilises the TMIS. This chapter thus explores the decision-making process in teacher training policies, including how the TMIS is utilised. It specifically delves into the centralisation of the system and avenues for decentralisation; its use in decision-making for pre-service teacher training and TPD; how often the records are updated; and how an interactive teacher database can help promote resource and data sharing as well as policy development in the country.

4.2 Teacher management information system (TMIS)

In Kenya, the teacher management function by the TSC is decentralised to the county levels (TSC, 2023). The TMIS is, however, centralised at the national level and operated by the TSC. The TMIS is a portal that enables teachers to update their biodata and other details. These include school details, such as school status, that is, private/public; school location and gender specifications, that is, whether girls, boys or mixed; education level, that is, whether primary, kindergarten or secondary; special needs department for both students and teachers; population details; subject enrolment for the school; ordinary enrolment; teachers' details, including teachers on study leave; non-full teaching load (because of illness); and KCPE/ KCSE performance.

While teachers' personal data are updated every time, a change occurs in their line of service. School heads are required by the MoE to update their schools' information online on the TMIS platform on an annual basis. Only teachers with a TSC number can access the online portal and fill in and update all the necessary details. The TMIS aims to cater to the needs of both employed and non-employed teachers. This way, they avail various services on the online platform and continuously update to fulfil members' needs. Figure 1 depicts the platform's landing page.

TEACHERS SERVICE COMMISSION KENYA - ONLINE SERVICES

Saturday, April 29, 2023

[New Teacher Registration:- Citizen](#) | [Teacher Registration:- Non-Citizen](#) | [Registration Status](#) | [Application For Duplicate Certificate Of Registration](#) | [TPAD Teacher Performance Appraisal](#) | [Teacher Posting & Entry/Exit](#) | [Declaration Of Income, Assets & Liabilities => Download Manual](#)

You are NOT logged in

[TMIS USER GUIDE](#)

Active Users: :2989

TEACHER REGISTRATION
 In accordance with article 237 of the Constitution of Kenya, Section 23 of TEACHERS SERVICE COMMISSION ACT No. 20 of 2012, it is an offence for any person to engage in the teaching service unless such a person is registered as a teacher. This system provides a platform for online application and registration.

ADVERTISED POSTS
 The Commission Advertise for vacant Posts for teachers. This Online System allows you to apply for any post you qualify and gives you the opportunity to track every stage of processing upto Appointment (**NOTE:** If you apply Online, You Don't Need to Submit a Hard Copy Version to the Commission. No Payments is required of any kind. As a Teacher, You Are NOT EXPECTED TO Register again with the Commission).

ENTRY/ EXIT RETURNS
 These are returns filled and filed by the head teachers, administrators or authorized officers entrusted with the responsibility by the Commission for onward respective processing at the Head Office and proper communications on issues like interdiction, injunction, suspension etc undertaken. (Exit/ Entry Returns can only be accessed once Logged In by Head of Institution).

Official
 User Name:
 Password:

[Teacher Registration Manual](#)

For any inquiries on Teacher Registration Call 020-2892351, on Adverts and Promotions call 020-2892000, and for general inquiries send an e-mail to: info@tsc.go.ke

Activate Wi
Go to Settings t

Figure 1: TMIS landing page

4.3 TMIS and decision-making

The TSC uses the TMIS for decision-making across its various teacher management functions. Among the key functionalities available on the platform are registration, denial of registration, and deregistration of teachers; teacher transfer requests; recruitment of teachers; deployment/assignment; teacher posting; and promotion.

4.3.1 Teacher Registration

The legislative framework on teacher registration requires a person to be registered by the Commission to teach in any educational institution registered by the minister responsible for education. The Teachers Service Commission Act 2012, article 237 particularly requires the Commission to register all qualified teachers before they can teach in any public or private institution. Registration is aimed at regulating the teaching profession by ensuring that persons entering the teaching service have the required academic and professional qualifications. A teacher who meets the requirements for registration is issued with the certificate of Registration bearing a TSC number within 30 days. The names of all registered teachers are published every

year. In line with this, the TMIS provides for registration, denial of registration, and deregistration of teachers.

Applicants are required to apply for registration online, and the user guide is also available. One should scan and upload the required documents. Applicants can be denied registration if they lack the relevant academic and professional qualifications; are not of good moral character; have been convicted of a sexual offence or an offence against a learner; have been convicted of a criminal offence which renders them unfit to be a teacher; are engaged in activities that are prejudicial to the peace, good order or good governance in Kenya; and suffer from physical or mental infirmity which renders them incapable of performing the duties of a teacher. Teachers can be deregistered if they die; obtain registration fraudulently; have been convicted of a sexual offence or an offence against a learner; have been convicted of a criminal offence which renders them unfit to be a teacher; are found unfit to teach following disciplinary proceedings; and suffer from physical or mental illness or infirmity which renders them incapable of performing the duties of a teacher.

4.3.2 Teacher transfer

Transfer requests are normally considered for approval by the Appointment Board, once at the end of a year. However, the Commission can transfer a teacher at its discretion. A teacher wishing to be considered for transfer should fill in a transfer application form online on the TMIS. Transfers for primary school teachers within the county are handled by the TSC County Director. Transfers outside the county and applications for transfer to tertiary institutions are processed at the TSC headquarters. Transfers are granted subject to the availability of vacancies and replacements.

4.3.3 Recruitment of teachers

The objective of teacher recruitment is to provide a sufficient professional teaching force for all public primary, secondary and tertiary institutions in the country. The TMIS allows teachers to apply for any post they qualify for and gives them the opportunity to track every stage of the process up to appointment.

4.3.4 Teacher posts

Through the TMIS, the TSC can determine which schools around the country require teachers or when a position falls vacant. The Commission then deploys applicants to fill the identified vacancies. This is guided by staffing norms, which are rules and formulae used to determine the number of teachers and administrators required in an institution.

4.3.5 Promotion

The TMIS further allows teachers to apply for promotions. The objective of promotion is to reward performance, manage succession and expand opportunities for career growth and progression. Promotion is based on existing schemes of service that may be reviewed from time to time.

4.3.6 Teacher performance appraisal and development

The TSC conducts TPAD using data uploaded to the TMIS with a view to enhancing professional growth and learning outcomes. The TSC Code of Regulations for Teachers, regulation 52(1), particularly provides for the Commission to develop an open performance appraisal system for teachers in its employment. This is aimed at strengthening supervision and continuous monitoring of the performance of teachers in the maintenance of the teaching standards at the institutional level. Figure 2 illustrates some of the services that the TSC offers on the TMIS.

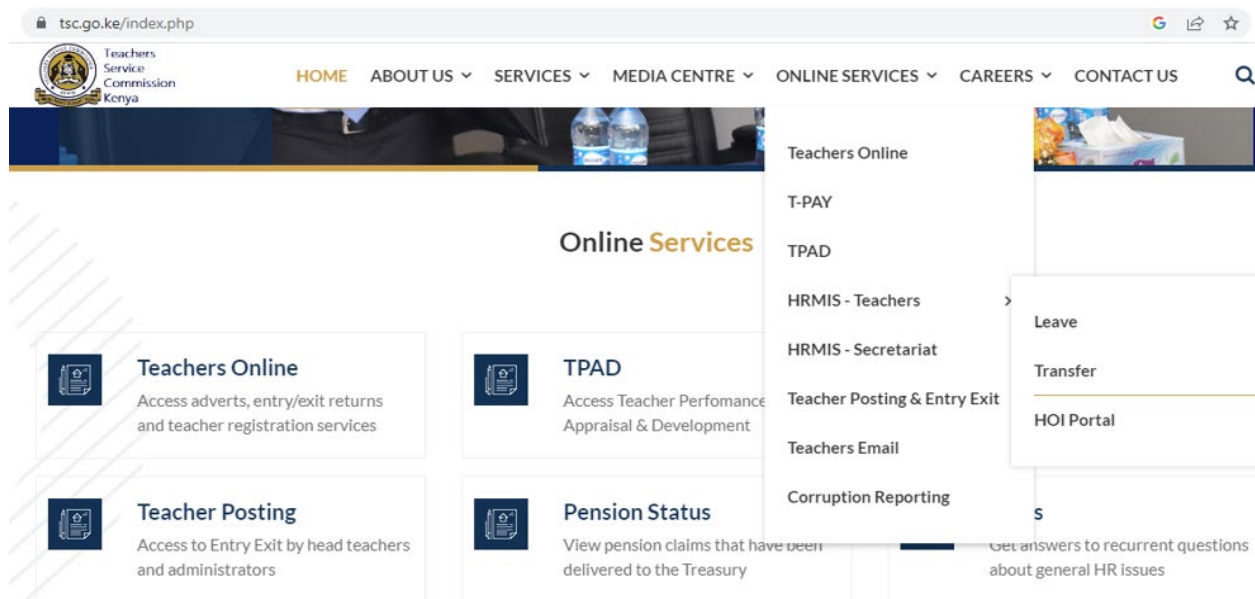


Figure 2: Online services offered on the TMIS (TSC, 2023)

4.4 Decentralisation of the TMIS and potential for an interactive teacher database

Decentralisation of the teacher management function to the 47 counties provides an avenue for decentralising the TMIS to the counties. Decentralisation, as used in this context, is the process of transferring authority to perform specific aspects of teacher management functions from the headquarters to the counties. Through this function, most services of the Commission can be accessed through the TSC county offices, while the role of the headquarters broadly entails formulation and direction of policy and regulating the operations of the frontline staff through advice and guidance, (TSC 2015). The function of decentralisation is to manage aspects of teacher management as per the existing policy and guidelines within the county through recruitment; transfers; posting; receiving and recommending teachers' study leave; and handling disciplinary matters as directed by the Commission secretary.

At the county levels, respective county governments, through their ministries of education, may use a decentralised version of the TMIS to maintain a database of all teachers in the county; maintain a databank of all teacher vacancies available in the county; coordinate identification and selection of candidates for TPD courses within the county; coordinate teacher promotions

under the common cadre establishment within the county; monitor the conduct and performance of teachers at the county level; oversee performance appraisal of teachers at the county level; and establish mechanisms to enhance communication and service delivery at the county level.

Beyond the county level, the TMIS can be decentralised further to an interactive school-level platform that can help promote resource and data sharing as well as policy development based on different contextual factors from school to school. The availability of and access to real-time performance data from classrooms and other learning spaces will be critical to addressing the increasingly dire learning crisis facing today's children and youth. Real-time performance data focus on the ongoing tracking of programme activities and progress of instructors and learners in order to better inform adaptations to programme inputs, activities and outputs along the way. Administrators (such as school or government leaders or programme facilitators) can use information on performance to adaptively manage resources and tailor programmes according to the needs of students and instructors. Similarly, instructors can use student data to ensure that they are teaching at the right level and customise their instruction based on individual learning patterns and needs. Students and families can use real-time data to track progress and use this information to advocate for their needs.

In an interview with the CEO of the TSC, it emerged that the TSC uses the TMIS for decision-making in teacher training in Kenya. In this regard, the TSC uses TMS as follows:

- Teacher utilisation and balancing, with alerts on over-staffing and under-staffing across the board
- Provides an inventory on the capacity of the teachers and where more capacity building is required
- Captures the teacher enrolments in all schools in the country
- Captures data on all teachers in Kenya
- Captures trends of teacher registration, for example, when there are more applications on graduations and recruitment
- Real-time entry and exit of teachers, which instantly affects payments. Data on exact reporting and exiting of teachers reported instantly, hence, no delays in payments/salaries
- Captures the register of teachers, which is used for teacher management.

On the part of the Ministry, during formulation and reviews, the MoE gets data from all respective departments, including ICT and researchers. It then collects and collates the data to generate evidence, which then informs the Ministry's decision-making on policy formulation, review, implementation and supervision. Currently, the Ministry is working to develop an evidence hub, where all research will have a one-stop online address.

Chapter 5: Towards a Policy Framework for ODL in Teacher Training in Kenya

5.1 Introduction

This chapter highlights the various policy gaps pertaining to policies and practices in ODL/TEL/OER/MOOCs in teacher training in Kenya, as revealed by the study. It then proposes key insights and potential policy interventions in ODL and TEL in teacher training and professional development.

5.2 Policy gaps

A number of policy gaps were identified in the use of ODL, TEL, OER and MOOCs in teacher training in Kenya, as enumerated below:

1. Limited policy framework: There is a lack of comprehensive policies specifically addressing the development of online programmes, infrastructure requirements and support in teacher training to facilitate ODL and TEL, as well as sourcing, curating and deployment of OER and MOOCs and other online programmes in teacher training at all levels. Furthermore, existing policies do not adequately address the unique challenges and opportunities presented by these modes of learning. The absence of dedicated policies can result in inconsistencies and ambiguity in the integration of these resources into teacher education programmes.
2. Quality assurance: Ensuring the quality of teacher training programmes delivered through ODL and TEL can be a challenge. There is a need for clear guidelines and mechanisms to monitor and evaluate the quality of online courses, materials and assessments to ensure that they meet the required standards. The absence of quality assurance mechanisms can also hinder the effective use of OER and MOOCs in teacher training. Policies should focus on developing guidelines and evaluation processes to ensure the quality and relevance of OER and MOOCs used in teacher education, aligning them with national standards and curriculum requirements.
3. Limited awareness and capacity building: A number of teachers and teacher educators have limited awareness of and training on the potential benefits and effective utilisation

of ODL, TEL, OER and MOOCs. There is a lack of capacity building for teacher trainers/educators and managers on ICT integration in teacher training at all levels. There is also limited capacity in the design and development of online training programmes as well as the domestication of OER, MOOCs and other online programmes for teacher training at all levels.

4. **Infrastructure and connectivity:** Access to reliable internet connectivity and necessary infrastructure, such as computers, laboratories and teaching and learning equipment, is limited in certain areas of Kenya, particularly the rural and marginalised areas. Unequal access to technology can create a digital divide and hinder the effective implementation of ODL and TEL initiatives. Policy gaps also exist in terms of providing adequate infrastructure and ensuring equal access to OER and MOOCs for all teachers, regardless of their geographical location or socioeconomic status.
5. **Digital literacy and training:** Teachers lack adequate support and training to effectively utilise ODL and TEL tools and platforms. The existing policies do not adequately prioritise digital literacy training for teachers to enhance their pedagogical skills in using technology for instruction.
6. **Recognition and accreditation:** Recognition and accreditation frameworks for ODL and TEL programmes in teacher training are lacking. This can pose challenges for teachers seeking professional advancement or recognition of their qualifications obtained through online modes of learning. The policies also lack specific provisions for evaluating and recognising the learning outcomes achieved through OER and MOOCs in teacher training. Assessment frameworks and mechanisms for recognising the knowledge and skills acquired by teachers through these modes of learning are lacking.
7. **Equity and inclusivity:** Existing policies do not put emphasis on or address issues of equity and inclusivity in ODL and TEL initiatives. Specifically, teachers from marginalised communities do not have equal access to online training opportunities, and the design and delivery of courses do not consider diverse learning needs.
8. **Support systems:** Effective support systems – such as online mentoring, coaching, and peer interaction – are needed to provide ongoing support and guidance to teachers

engaged in ODL and TEL programmes. Policies may not have adequately focused on establishing and sustaining these support mechanisms.

9. Inter-departmental collaboration: Government institutions in the country are working in silos on matters of pre-service and in-service teacher training. There is minimal or no collaboration among key policy actors like the MoE, the TSC and KICD. For instance, the TSC is primarily involved in in-service training, while its role in pre-service training is only advisory. This is surprising, given that it is the main employment body for pre-service teachers. This has proven quite inadequate especially regarding the uptake of TPD, as pre-service teachers graduate being more academic than professionals. The contribution of the TSC towards teacher development at the pre-service level and TPD needs to be constantly reviewed based on evolving national priorities.
10. Sustainability and institutional support: The developed policy statements are not aligned with implementation strategies; hence they are unsustainable. A case in point is the DLP. The current policies do not sufficiently address the sustainability and long-term institutional support required for integrating ODL, TEL, OER and MOOCs into teacher training. There is a need for policies that encourage collaboration among educational institutions, content creators, and technology providers to ensure the ongoing availability and maintenance of high-quality ODL, TEL, OER and MOOCs. There is a lack of proper linkages with existing projects such as DLP to ensure smooth transition, continuity and sustainability.
11. Intellectual property rights and licensing: Policies related to intellectual property rights and licensing of OER and MOOCs may not be well-defined or adequately communicated. There are no clear guidelines that provide direction that ensure compliance with copyright laws and that promote the sharing, adaptation and re-use of high-quality open educational materials.
12. Resources for implementation: While we have good policies developed to implement technology in in-service teacher training, no resources are allocated to implement them, hence the high rate of failure. There is a lack of policies dedicated to the allocation of financial and human resources to implement strategies spelt out in the existing policies. This would be instrumental in providing funding for infrastructure development,

capacity-building initiatives, and ongoing support and maintenance of ODL, TEL, OER and MOOC platforms.

13. Teacher professional development (TPD): While the current TPD programme has an elaborate implementation strategy, it lacks a sustainability plan. There is considerable uncertainty going forward, particularly regarding the cost bearer – the government or individual teachers. This is exacerbated by its voluntary nature. This hinders its uptake and threatens its sustainability.

5.3 Recommendations

To address the policy gaps identified in the use of ODL and technology-enabled learning (TEL) in teacher training in Kenya, the following policy interventions may be considered:

1. Develop a comprehensive policy framework: Establish a dedicated policy framework that specifically addresses ODL, TEL, OER and MOOC in teacher training. This framework should outline clear objectives, guidelines and strategies for integrating these modes of learning into teacher education programmes.
2. Establish quality assurance mechanisms: Develop and implement quality assurance mechanisms for ODL and TEL programmes. This can include the creation of standards, guidelines, peer-review mechanisms, and evaluation processes to ensure that online courses, materials and assessments meet the required quality benchmarks and that they are aligned with curriculum requirements.
3. Raise awareness and provide training: Develop policies that prioritise awareness-raising and training initiatives for teachers and teacher educators. This may include organising workshops, seminars and online training programmes to enhance their understanding of OER and MOOCs and build their capacity to effectively utilise these resources in teaching and learning.
4. Improve infrastructure and connectivity: Invest in improving internet connectivity and access to necessary infrastructure in all regions of Kenya; thus, aim at improving access to ODL, TEL, OER and MOOCs for all teachers, regardless of their location or socioeconomic status. This can be achieved through initiatives such as expanding broadband infrastructure, providing affordable internet packages, and equipping schools

and teacher training institutions with the necessary technology resources and infrastructure.

5. Enhance digital literacy training: Develop policies that prioritise digital literacy training for teachers. This can be done by deliberately incorporating digital skills development into pre-service and in-service teacher training programmes. Additionally, establish professional development programmes and resources to support teachers in enhancing their pedagogical skills in using technology for instruction.
6. Establish recognition and accreditation frameworks: Develop frameworks that recognise and accredit the learning outcomes achieved through ODL, TEL, OER and MOOC programmes in teacher training. This can involve working closely with accreditation bodies to ensure that online programmes meet the required standards and receive appropriate recognition. Clear pathways for career advancement and professional recognition for teachers who complete online programmes should also be established. This can involve integrating ODL, TEL, OER and MOOCs into existing teacher certification and professional development processes, ensuring that teachers' knowledge and skills acquired through these resources are recognised and valued.
7. Promote equity and inclusivity: Implement policies that address issues of equity and inclusivity in ODL, TEL, OER and MOOC initiatives. This can include targeted interventions to ensure equal access to online training opportunities for teachers from marginalised communities. Design and delivery of courses should consider diverse learning needs, languages and cultural contexts to promote inclusivity.
8. Establish support systems: Develop policies that establish and sustain effective support systems for teachers engaged in ODL, TEL, OER and MOOC programmes. This can include online mentoring, coaching and peer interaction platforms. Adequate resources should be allocated to provide ongoing support and guidance to teachers, addressing their needs and concerns throughout the learning process.
9. Promote inter-departmental and inter-agency collaboration: There is a need for all relevant policy actors to work in a collaborative and concerted manner on the development and implementation of policies pertaining to the integration of ODL, TEL, OER and MOOCs in both pre-service and in-service teacher training in the country.

There ought to be a policy framework identifying potential areas of collaboration without role conflicts at every level of teacher training. This should target identifying all actors in the space, such as those providing power, infrastructure and other stakeholders.

10. Promote collaboration and sustainability: Encourage collaboration among educational institutions, content creators and technology providers to ensure the sustainability and ongoing availability of high-quality OER and MOOCs. Policies should support the development of partnerships and networks for content creation, curation and maintenance, fostering a culture of collaboration and knowledge sharing.
11. Establish policies that clearly define intellectual property rights and licensing frameworks for OER and MOOCs: This can include guidelines on Creative Commons licensing, fair use, and open licensing practices. Educators should be encouraged to share, adapt and create OER while respecting copyright laws.
12. Allocate resources for implementation: Ensure that adequate financial and human resources are allocated for the implementation of policies related to ODL, TEL, OER and MOOCs in teacher training. This can include funding for infrastructure development, capacity-building initiatives, and ongoing support and maintenance of OER and MOOC platforms.
13. Re-engineering TPD: There is a need for the TSC to re-engineer the TPD programme by making it fully online and affordable. While it may not be mandatory, it could be integrated into the recruitment criteria by presenting it as an added advantage. The Commission could also make it more accessible by making the initial modules free but payable as one advances through the levels. The TSC could also take advantage of the current challenge in the implementation of the TPD, as a policy window and pursue a policy that makes TPD school-based and integrated within the KICD lesson arrangement. In this regard, the TSC could explore the current KICD timetable/lesson arrangement and identify a leeway for having a TPD session on a particular day, say Fridays. Teachers would then use a one-hour session every Friday for TPD. This is currently practised as a “TPD hour” in China, Canada, and a number of other Commonwealth countries.
14. At the school level, it is recommended that school administrations take a keen review of the leadership style given that the transformational leadership style is seen to have a

significant influence on ICT integration in primary schools. It is advisable that head teachers adopt the transformational leadership style and offer support, motivation and encouragement to their teachers geared towards enabling teachers to train and develop their teaching practice, especially towards honing their skills in their application of ICT in teaching.

15. It is further recommended that both the administration and boards of management of primary schools across the country mobilise requisite resources to acquire pertinent ICT infrastructure for use by both teachers and learners in their teaching practice and learning, respectively. It is also recommended that school administrations, as well as teacher management under the TSC, develop and execute programmes to reinforce teachers' efficacy in the adoption, use and innovation of technology.

5.3.1 Establishing a dedicated policy framework

The Kenyan MoE can establish a robust framework that harnesses the power of ODL, TEL, OER and MOOCs to enhance teacher training and ultimately improve the quality of education in the country. Establishing a dedicated policy framework for ODL, TEL, OER and MOOCs in teacher training in Kenya requires a comprehensive approach that considers various aspects of policy development, implementation and monitoring. The following is a practical step-by-step guide:

1. **Conduct a needs assessment:** Begin by conducting a thorough needs assessment to understand the current state of teacher training in the country. Identify the gaps, challenges and opportunities where ODL, TEL, OER and MOOCs can play a significant role in enhancing teacher education.
2. **Engage stakeholders:** Involve all relevant stakeholders in the education sector, including representatives from the MoE, teacher training institutions, teachers' unions, educational technology experts, and policymakers. Gather input and insights from each group to ensure the policy reflects diverse perspectives and needs.
3. **Define objectives and goals:** Clearly articulate the objectives and goals of the policy framework. These could include improving teacher training access, enhancing the quality of training, updating pedagogical approaches, and promoting continuous professional development.

4. Alignment with national education goals: Ensure that the policy framework aligns with the broader goals of the national education system and the country's development agenda. Integration with existing policies will increase the likelihood of successful implementation.
5. Regulatory and accreditation guidelines: Develop guidelines for accrediting ODL, TEL, OER and MOOC-based teacher training programmes to maintain quality standards and ensure that teachers receive relevant and valuable training.
6. Curriculum development: Collaborate with teacher training institutions and subject matter experts to develop and integrate ODL, TEL, OER and MOOC modules into the teacher training curriculum. These modules should complement existing in-person training programmes and offer flexible learning options.
7. Teacher support and training: Provide training and support to teacher trainers and faculty to effectively design, deliver and assess ODL-, TEL-, OER- and MOOC-based courses. This training should focus on best practices in online teaching and learning methodologies.
8. Digital infrastructure and connectivity: Address infrastructure challenges, such as internet connectivity and access to technology, to ensure that both teachers and learners can participate in online training without barriers. It would be good to take stock of what exists in the institutions and spell out the gaps to plan for adequate resources to meet this need.
9. Licensing and copyright: Develop a clear policy on the licensing and use of OER and other digital resources to promote open access while respecting copyright laws and intellectual property rights.
10. Monitoring and evaluation: Establish a system for monitoring the implementation of the policy framework and regularly assess its effectiveness. Gather feedback from teachers and institutions to identify areas for improvement and make necessary adjustments.
11. Public awareness and advocacy: Launch awareness campaigns to inform teachers, institutions and the public about the benefits of ODL-, TEL-, OER- and MOOC-based teacher training. This would encourage greater participation and support for the initiative.

12. Pilot programmes and scaling: Start with pilot programmes in select teacher training institutions to test the effectiveness of the policy framework. Based on the results, refine the approach and gradually scale it up to reach a wider audience.
13. Continuous improvement: Policy development is an iterative process. Regularly review and update the policy framework based on feedback, changing needs and emerging technologies to ensure its relevance and effectiveness over time.
14. Collaboration and partnerships: Foster partnerships with international organisations, EdTech companies, and other countries that have successfully implemented similar initiatives. Learning from their experiences and best practices can enhance the success of Kenya's policy framework. Identify international trends in the EdTech space and what has already been done and can be adopted instead of reinventing the wheel.
15. Legal and policy considerations: Address legal and policy considerations related to cross-border collaborations, intellectual property rights, data privacy, and other relevant issues. By adopting these suggestions, COL and other stakeholders can foster a collaborative and participatory process to develop a robust framework or strategy document that effectively addresses ODL, TEL, OER and MOOCs in teacher training, benefiting educators and learners across member countries.

5.3.2 Proposals for COL

The proposed practical steps and maintaining a strong commitment to the successful implementation of the policy will require collaborating with stakeholders to ensure a comprehensive and well-informed framework or strategy document for ODL, TEL, OER and MOOCs is realised. The following are some suggestions that COL could consider leading in:

1. Inclusive stakeholder engagement: Lead the involvement of a diverse range of stakeholders from various backgrounds, including education experts, government representatives, educators, students, EdTech professionals, and civil society organisations. This process would ensure that the following is achieved:
 - i. Information sharing and research: Create a platform for continuous knowledge sharing and networking among stakeholders. This would warrant that they share relevant research, insights, perspectives and best practices related to ODL, TEL,

- OER and MOOCs in teacher training. They would also provide up-to-date information and data to inform the development of the framework.
- ii. Identify common goals: Work together to identify shared objectives and common goals among the collaborating stakeholders. This alignment would help ensure that the framework addresses the needs of all parties involved.
 - iii. Define roles and responsibilities: Clearly define the roles and responsibilities of each stakeholder in the drafting process and implementation process. Establish a collaborative governance structure to manage decision-making and implementation responsibilities.
 - iv. Regular consultations and feedback: Organise regular consultations and feedback sessions to allow stakeholders to review and provide input on draft versions of the framework. Encourage open discussions to address concerns and reach consensus.
2. Needs assessment and context analysis: Conduct a thorough needs assessment and context analysis to understand their specific challenges, opportunities and existing capacities related to teacher training and digital learning. This exercise would help identify best practices in other parts of the world, what can be adopted, and what needs to be developed to meet the country's specific needs for ensuring ODL, TEL, OER and MOOCs in teacher training are achieved.
 3. Support GoK alongside its respective departments to establish a robust policy framework that harnesses the power of ODL, TEL, OER and MOOCs to enhance teacher training and ultimately improve the quality of education in the country. This would involve:
 - i. Sustainability and scalability: Consider the sustainability and scalability of the framework. Ensure that the solutions proposed can be maintained and expanded in the long term.
 - ii. Funding and resource mobilisation: Collaborate on funding and resource mobilisation efforts to support the implementation of the framework. Seek support from international donors, governments and private sector partners.
 - iii. Piloting and iterative approach: Consider piloting the framework in select areas to test its effectiveness. Use the results to make improvements and adjustments before scaling up the implementation.

- iv. Public awareness and advocacy: Engage in advocacy efforts to raise awareness about the framework and its potential impact on teacher training and education outcomes.
 - v. Monitoring and evaluation: Develop a system for ongoing M&E of the framework's implementation. Regular assessment would help identify successes, challenges and areas for improvement.
4. Capacity building: Invest in capacity building for all stakeholders involved, especially those working with the teachers in training and management who may need support with embracing digital learning technologies and approaches and ensuring their implementation. This should ensure that there is equity and inclusivity for all teachers.

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Annexures

Annexure 1: Country Policy Profile

Public policymaking processes in Kenya start with the identification and definition of a policy problem or question. The identification of the policy problem can be done by the Ministries, Departments or Agencies (MDAs), the Presidency, Cabinet, Parliament, academia, think tanks, citizens, or civil society organisations.

The second stage involves setting the agenda, where the problem and its solutions are brought to the attention of the government. The problem and solutions are filtered to ensure only pertinent issues come to the attention of the government officials. Once the agenda is set, drafting of the policy begins.

The third stage involves designing the policy through the development of an effective course of action to reach policy goals through specific projects, programmes, or activities. Policy analysis is conducted to identify the causes of the problem, policy choices that make sense, and ways the government can act. Planning is also done at this stage by setting goals, developing strategies, outlining implementation arrangements, and allocating resources to achieve the goals. The draft policy is shared widely to ensure there is public participation of stakeholders. Once stakeholders' input is incorporated, the MDAs concerned prepare a policy document.

The fourth step of the policy formulation is the review and approval by the Cabinet, or the County Executive. A review of the final policy document is done to ensure proper policy analysis has been conducted, different approaches have been identified, and the best options to address the situation are available.

The fifth stage involves parliamentary or county assembly approval. The policy document is published and tabled in the house and subjected to the relevant house committee for scrutiny and consideration, and it may be approved with or without amendments. The house committee may seek the views of the executive or further clarifications. After approval by the parliament or the county assembly, the bill is submitted to the president or the county governor by the speakers of the House for formal endorsements through signature and affixation of the national seal or county seal, respectively. If the policy is signed, it is published as a white paper and circulated by

the executive to keep the public informed of the effects of the policy. If it is determined that a new law is necessary to achieve the objectives of the policy, the concerned MDAs will draft the bill, which will be tabled in the House as a legislative proposal.

The following is a summary of policies, guidelines and programmes pertinent to pre-service and in-service teacher training in Kenya.

Policy name	Responsible institution(s)	Main policy objective	Link
Kenya Vision 2030	The National Treasury and Economic Planning; Kenya Vision 2030 Secretariat	To create “a globally competitive and prosperous country with a high quality of life by 2030”. It aims to transform Kenya into “a newly industrialising, middle-income country providing a high quality of life to all its citizens in a clean and secure environment”.	https://vision2030.go.ke/
Sessional Paper No. 1 of 2012	MoE	To align teacher training and management structures and practices to the Constitution of Kenya (2010) as well as the aspirations set forth in the Kenya Vision 2030.	https://www.tvetcdacc.go.ke/wp-content/uploads/2016/09/A-POLICY-FRAMEWORK-FOR-EDUCATION-AND-TRAINING.pdf
Sessional Paper No. 1 of 2019, a Policy Framework for Reforming	MoE	To address the constitutional requirements and national aspirations as well as offer Direction in modernising and	http://www.parliament.go.ke/sites/default/files/2019-09/Report%20on%20Sessional%20Pa

Policy name	Responsible institution(s)	Main policy objective	Link
Education and Training for Sustainable Development in Kenya		rebranding the country's education, training and research.	per%20No.%201%20of%202019%20on%20Policy%20Framework%20for%20Reforming%20Education%20and%20Training%20for%20Sustainable%20Development.pdf
Code of Regulations for Teachers, 2016 on the Teachers Service Commission Code of Regulations for Teachers (Amendments)	TSC	Provides the minimum academic and professional requirements for registration of teachers of various grades, including Bachelor of Arts/ Bachelor of Science, Bachelor of Education, Diploma in Education for visually and hearing impaired, Diploma in Education, PTE, and EYE.	https://www.tsc.go.ke/index.php/downloads-b/category/13-code-of-regulation
Career Progression Guidelines for Teachers, 2018	TSC	Provides for entry requirements into the teaching service, promotion and capacity building of teachers.	https://www.tsc.go.ke/index.php/downloads-b/category/6-career-progression-guidelines?download=6:teachers-career-progression-guidelines

Policy name	Responsible institution(s)	Main policy objective	Link
Kenya National Qualification Regulations, 2018	The Kenya National Qualification Authority	Seeks to standardise and harmonise the country's qualifications by Putting in place a system for setting standards defining expected knowledge, skills and understanding needed for labour market employment, self-employment or further education within Kenya education and training	https://www.knqa.go.ke/wp-content/uploads/2018/10/KNQF-Regulations-2018.pdf
National Pre-Primary Education Policy Standard Guidelines, 2018	MoE	Provides specific standards on access; equity and inclusion; quality and relevance; governance and accountability; research, M&E; as well as financing and partnerships.	https://planipolis.iiep.unesco.org/sites/default/files/resources/pre-primary_policy_guidelines_11_1.pdf
Policy on Mentorship and Coaching in The Teaching Service, 2020	TSC	Provides clear guidance in institutionalising the mentorship and coaching programme in the teaching service.	https://www.tsc.go.ke/index.php/media-centre/downloads/category/41-policies?download=871:policy-on-mentorship-and-coaching-in-the-teaching-service-may-2020

Policy name	Responsible institution(s)	Main policy objective	Link
Teacher Recruitment and Selection Policy, 2019	TSC	Provides procedures for the recruitment, selection and Vetting of teachers by the Commission	https://www.tsc.go.ke/index.php/services/teacher-management/recruitment-and-selection
National Information, Communication and Technology (ICT) Policy	Ministry of Information, Communications and Technology, Kenya	Grow the contribution of ICT to increase the overall size of the digital and traditional economy to 10% of GDP by 2030, by using ICT as a foundation for the creation of a more robust economy, providing secure income and livelihoods to the citizenry.	https://www.ict.go.ke/wp-content/uploads/2019/12/NATIONAL-ICT-POLICY-2019.pdf
Teacher Professional Development programme	TSC	Professional development of in-service teachers to facilitate teachers' career progression	
Policy on Information and Communication Technology in Education and Training, 2021	MoE	To promote good governance and management of ICT in education and training	https://www.education.go.ke/sites/default/files/2023-01/ICT%20IN%20EDUCATION%20AND%20TRAINING%20POLICY%202021.pdf

Policy name	Responsible institution(s)	Main policy objective	Link
National Online, Distance And E-Learning (ODEL) Policy and Strategy for TVET Institutions in Kenya	MoE	Intended to align the provision of TVET ODeL programmes with the Constitution of Kenya, 2010; the Kenya Vision 2030, Big Four National Development agenda and other international protocols like SDG 4.	file:///C:/Users/User/Downloads/odel%20POLICY%20Version%202.pdf

Annexure 2: Key Interview Guide for Informant 1

Date.....

Time.....

Duration.....

Location.....

Part A: Pre-service and In-service Teacher Training Structure in Kenya

1. What is the current pupil-teacher ratio (PTR) in public primary schools in Kenya? What is the teacher deficit?

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2. What is the current student-teacher ratio (STR) in public secondary schools in Kenya? What is the teacher deficit?

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3. What is the role of the TSC in pre-service and in-service teacher training in Kenya?

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4. What are the pre-service teacher training requirements by the TSC?

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5. What are the in-service teacher training requirements by the TSC?

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6. What is the average annual pre-service teacher employments by the TSC?

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7. In your opinion, is the annual pre-service teacher employments by the TSC sufficient to address the teacher shortages in the country?

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8. What measures has the TSC put in place to ensure quality in pre-service and in-service teacher training in Kenya?

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9. What measures has the TSC put in place to address the structural changes occasioned by the new CBC curriculum in pre-service and in-service teacher training in Kenya?

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Part B: ODL and TEL Policy and Practice in Teacher Training

10. What role does the TSC play in determining the mode of pre-service and in-service teacher training in the country?

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11. To what extent are ODL/TEL/OER/MOOCs applied in pre-service and in-service teacher training in Kenya?

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12. To what extent are ODL/TEL/OER/MOOCs applied in pre-service and in-service teacher training in the new CBC curriculum?

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13. To what extent is the TSC involved in the formulation of policies and practices on the use of ODL/TEL/OER/MOOCs applied in pre-service and in-service teacher training in Kenya?

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Part C: Training Institutions in Kenya

14. Are the accredited teacher training colleges/universities in Kenya adequately resourced to deliver on pre-service and in-service teacher training guidelines by the TSC using ODL/TEL?

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15. How does the TSC use the teacher management information systems for decision-making in teacher training in Kenya?

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16. How does the TSC use the teacher management information systems for decision-making in teacher placement in Kenya?

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Annexure 3: Key Interview Guide for Key Informant 2

Date.....

Time.....

Duration.....

Location.....

Part A: Pre-service and In-service Teacher Training Structure in Kenya

1. What is the Ministry's role in pre-service and in-service teacher training in Kenya?

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2. What policies govern the pre-service and in-service teacher training structure in Kenya?

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3. Who are the main stakeholders in the pre-service and in-service teacher training in Kenya, and to what extent are they involved in the formulation of pertinent policies?

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4. What are the Ministry's current policy priorities on pre-service and in-service teacher training in Kenya?

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5. What measures have the Ministry put in place to address the structural changes occasioned by the new CBC curriculum in pre-service and in-service teacher training in Kenya?

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6. What measures has the Ministry taken to address the teacher deficit in public primary and secondary schools in Kenya?

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7. What measures have the Ministry put in place to ensure that pre-service and in-service teacher training in Kenya measure up to the increased enrolment rates, 100% transition strategy from primary to secondary schools and the registration of new schools?

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Part B: ODL and TEL Policy and Practice in Teacher Training

8. Are there any policies governing the use of ODL/TEL in pre-service and in-service teacher training in Kenya?

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9. What are some of the emerging policy issues on the use of ODL/TEL in pre-service and in-service teacher training in Kenya?

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10. Are there any model countries from which the Ministry draw policy lessons on the use of ODL/TEL in pre-service and in-service teacher trainings in Kenya?

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Part C: Training Institutions in Kenya

11. Are the accredited teacher training colleges/universities in Kenya adequately resourced to deliver on pre-service and in-service teacher training using ODL/TEL?

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12. How does the Ministry use the teacher management information systems to inform policy formulation on teacher training in Kenya?

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Annexure 4: Key Interview Guide for Informant 3

Date.....

Time.....

Duration.....

Location.....

Part A: Pre-service and In-service Teacher Training Structure in Kenya

1. What role does KICD play in pre-service and in-service teacher training in Kenya?

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2. What is the prescribed mode of instruction/teaching in pre-service and in-service teacher training in Kenya?

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3. How regularly does KICD review the curriculum for pre-service and in-service teacher training in Kenya?

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4. What changes has KICD made in the prescribed mode of instruction/teaching in pre-service and in-service teacher training under the new CBC curriculum?

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Part B: ODL and TEL Policy and Practice in Teacher Training

5. To what extent are ODL/TEL/OER/MOOCs applied in pre-service and in-service teacher training curriculum as developed by KICD?

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6. To what extent are ODL/TEL/OER/MOOCs applied in pre-service and in-service teacher training in the new CBC curriculum as developed by KICD?

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7. To what extent is the KICD involved in the formulation of policies and practices on the use of ODL/TEL/OER/MOOCs applied in pre-service and in-service teacher training in Kenya?

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Part C: Training Institutions in Kenya

8. Are the accredited teacher training colleges/universities in Kenya adequately resourced to deliver a pre-service and in-service teacher training curriculum as developed by KICD using ODL/TEL?

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9. How does KICD use the teacher management information systems for decision-making in the pre-service and in-service teacher training curriculum in Kenya?

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