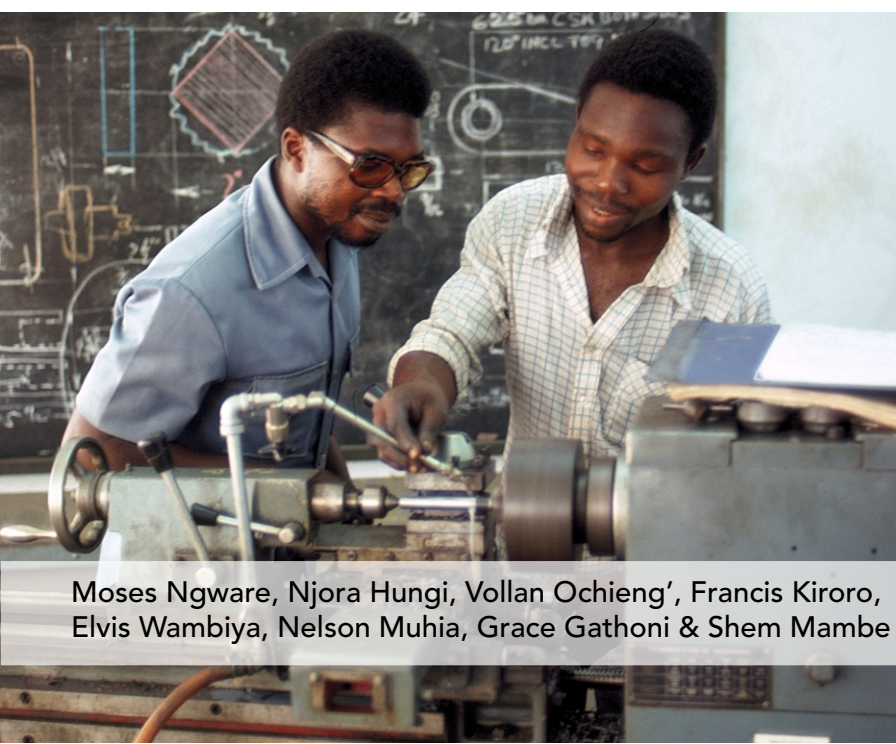**APHRC** African Population and
Health Research Center

Building Capabilities for Work and Life

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Moses Ngware, Njora Hungi, Vollan Ochieng', Francis Kiroro,
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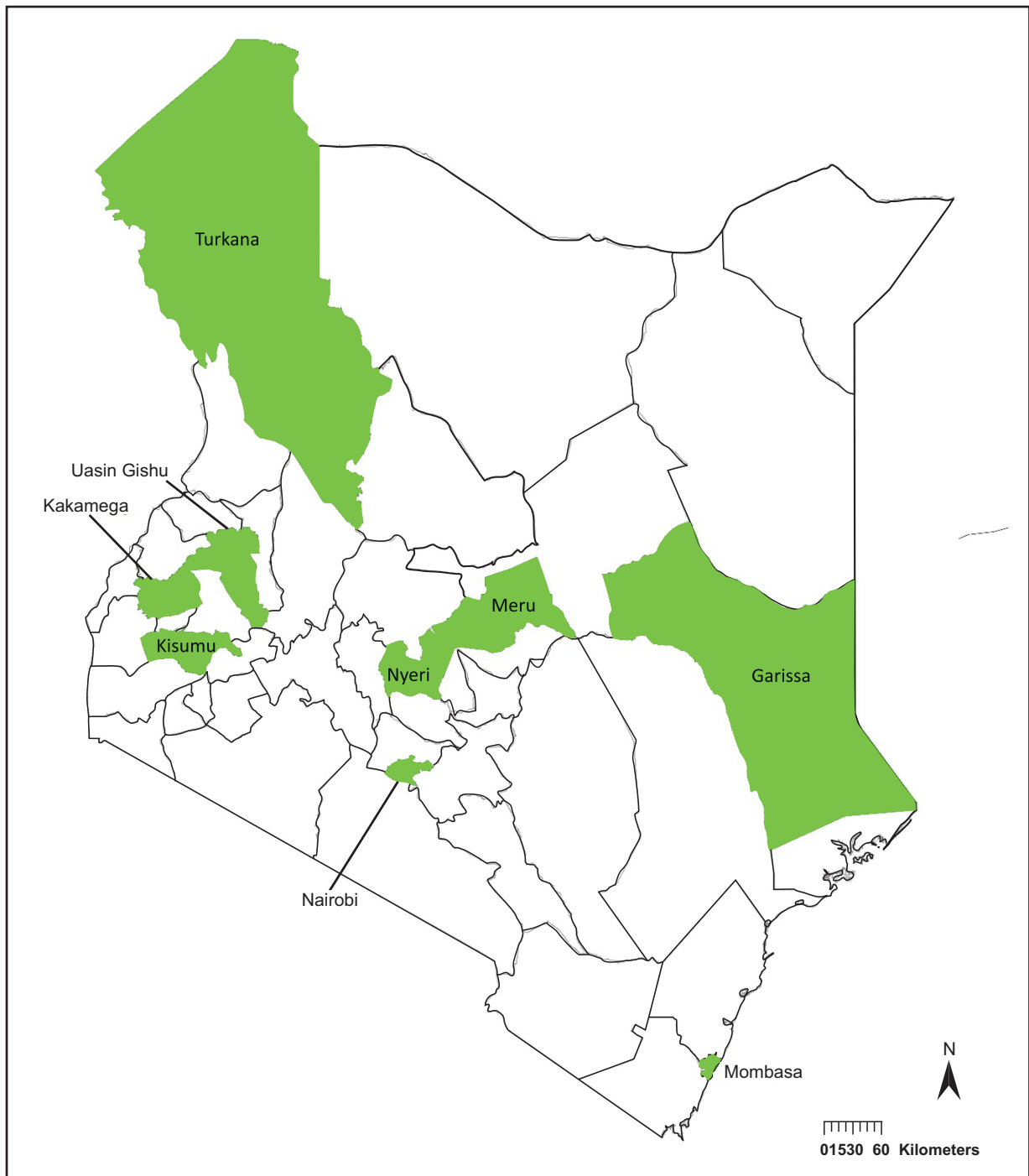
TVET REPORT

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Location of study counties in Kenya

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Abbreviations

AC	Artisan Certificate
AMREF	African Medical and Research Foundation
BEST	Basic Employability Skills Training
BoG	Board of Governors
BoM	Board of Management
CBET	Competency Based Education and Training
CC	Crafts Certificates
CDACC	Curriculum Development Assessment and Certification Council
CDTVET	County Directors of Technical and Vocational Education and Training
CSOs	Civil Society Organizations
DTE	Directorate of Technical Education
DVET	Directorate of Vocational Education and Training
FGDs	Focus Group Discussions
FPE	Free Primary Education
GoK	Government of Kenya
HELB	Higher Education Loans Board
HYD	Holistic Youth Development
IDIs	In-Depth Interviews
KES	Kenya Shillings
KICD	Kenya Institute of Curriculum Development
KIIs	Key Informant Interviews
KNEC	Kenya National Examinations Council
KNQA	Kenya National Qualifications Authority
MoE	Ministry of Education
NACOSTI	National Commission for Science, Technology and Innovation
NAVCET	National Vocational Certificate in Education and Training
NGOs	Non-Governmental Organizations
NITA	National Industrial Training Authority
NP	National Polytechnics
PCR	Primary Completion Rate
SES	Socio-economic Status
SMEs	Small and Medium-size Enterprises
SWB	Subjective Well Being
TCs	Technical Colleges
TD	Technical Diploma
TSC	Teachers Service Commission
TUs	Technical Universities
TVET	Technical and Vocational Education and Training
TVETA	Technical and Vocational Education and Training Authority
TVETF	Technical and Vocational Education and Training Fund
TTIs	Technical Training Institutes
TTIs	Technical Training Institutes
TTTCs	Technical Teachers Training Colleges
VTCs	Vocational Training Centers
WYD	Whole Youth Development

Operational definations of the key variables

Variable	Operational definition
Academic skills	Cognitive skills and higher-order competencies learned in school, college and TVETs, and universities.
Basic computing s kills	Ability to undertake primary computer functions such as use email, internet, word processor, and spreadsheets.
Capability	The power or ability to undertake an activity.
Competence	Ability, knowledge, skills, and commitments that enable a person or persons to act or undertake an assignment, job, or situation effectively. It involves having quality and adequate judgment and strength for a given task and/or in a given field.
Core values	Beliefs and principles that an individual or an organization deems central and which influence their behaviors or operations.
Entrepreneurship	Ability and willingness to organize, develop and manage a business venture regardless of the risks, in order to realize a profit.
Financial planning and management	All financial activities including assigning of roles, recording and regulation of financial transactions, budgeting etc.
Guidance and counselling	Support an individual towards achieving their desired pathway. This includes matters pertaining to health, education, and relationships among other life choices.
HIV and AIDS knowledge	Basic knowledge of HIV and AIDS, including its trend in the country, means of its spread, control and prevention.
Life skills	This refers to abilities for coping and positive behavior that enables humans to deal effectively with the challenges and demands of life
Literacy skills	Ability to interpret printed and written materials associated with varying contexts to identify and understand issues of concern.
Marketing and sales	An undertaking or industry of promoting and selling of goods and services, including advertising and market research.
Non-academic skills	Non-cognitive skills or skills obtainable or obtained during the course of learning for a formal school subject. For instance, self-motivation, self-awareness, and networking skills.
Numeracy/mathematics skills	Ability to reason with numbers and other mathematical concepts and to apply these in a range of contexts to solve a variety of problems.
Relationships, courtship and mar riage training	Training or mentorship on how to relate to others and maintain healthy and harmonious relationships.
Sexual and reproductive health education	Educational information relating to reproductive health. Such information includes but is not limited to abstinence and use of contraceptives for the sexually active individuals in an effort to guard against unplanned pregnancies and sexually transmitted diseases.
Social -emotional skills	Essential skills needed by individuals to help recognize and control their emotions and behaviors, set and achieve positive goals, and establish and maintain positive relationships.
Technical skills	Abilities and knowledge required to start and undertake engineering, scientific, or computer related assignments, including other specific tasks pertaining to technology.
Whole youth development	Incorporates all academic and non-academic (values, spirituality, social and emotional skills, and life skills) skills obtained by a student in the course of their life development/growth. These include the activities, structures and cultures that strengthen the entire young person, and is sometimes referred to as 'Holistic Youth Development - HYD'.

Acknowledgements

Executive summary

Academic and technical knowledge, individual core values as well as skills and capabilities are key success factors in the labor market. These traits are especially important for young people preparing for the 21st century workplace. It is essential that they cultivate 'Whole Youth Development' (WYD) skills which encapsulate academic and technical competencies alongside soft skills, such as critical thinking, problem-solving, social and communication skills, persistence, creativity, and self-control. This holistic skill set helps support integration of youths into society as well as the wider community and other social contexts. This report provides an assessment of how young people acquire these core values and capabilities within Technical and Vocational Education and Training (TVET) institutions in Kenya.

Every year about 10 million youth graduate from TVET institutions in Africa, with 500,000 to 800,000 of them in Kenya (Samuel Hall, 2017). However, little is known about how well the education and training institutions prepare young people through a 'Whole Youth Development' approach to enhance their success in the labor market. Emerging literature on the automation and digitization era show that soft skills enable individuals to learn how to learn, and hence adapt to a fast-changing technological era (Nebe & Mang'eni, 2016; Sikenyi, 2017; World Bank, 2016).

To inform policy discourse as well as improve understanding of how youth in Kenya are prepared to succeed in the job market, this study investigated:

- The extent to which TVET policy frameworks promote WYD among youth;
- The extent to which TVET curricula integrate WYD;
- Existing capacities within TVET institutions for the production of core values
- and capabilities;
- Key influencers of WYD for TVET institutions in Kenya; and
- The extent to which students in TVET institutions exhibit WYD capabilities.

A cross-sectional survey was used to obtain large observational data. The target population was on-campus students aged 15 to 25 years, attending the three categories of TVET institutions that are accredited by the Technical Vocational Education and Training Authority (TVETA). The study sample for quantitative data included 171 institutional heads, 347 instructors, and 3,452 students in both the first and final years of study. Additionally, qualitative data was collected from TVET regulatory and policy making bodies, final year students, and county (sub-national) directors of TVET.

Data was represented using graphical representations of disaggregated data, as well as ratios and proportions. Other calculations include creating composite indices as proxies for observed traits or characteristics such as perception index and household socio-economic status.

Key findings

TVET policy frameworks and WYD among youth

One of the policy aims within Kenya's education sector is the attainment of a well-specialized and trained workforce that meets international standards. TVET institutions have been identified as viable pathways towards this goal. Reforms undertaken on TVET education to this end borrow from Sessional Paper No. 14, 2012 – a policy framework on Reforming Education in Kenya, which is aligned to the country's economic blueprint dubbed 'Vision 2030'.

The reforms (aimed at stimulating employment, contributing to improved productivity, competitiveness, and prosperity of individuals), are also actualized through the TVET Act of 2013. The act created a number of bodies, including the Technical and Vocational Education and Training Authority (TVETA), and the Curriculum Development Assessment and Certification Council (CDACC). The latter is a body responsible for TVET curriculum development, assessment and certification of programs.

TVETA is governed by secondary regulation through the Technical Vocational Education and Training Regulations, 2015. Other Acts of Parliament that govern the education sector which houses the TVET sub-sector include: Kenya National Qualification Framework Act, 2014; Science, Technology and Innovation Act, 2012; Kenya National Examination Council Act, 2012; Kenya Institute of Curriculum Development Act, 2012; Industrial Training Act, 2012; the Basic Education Act, 2012; State Corporations Act, 2012; the Universities Act, 2012; and the Accountants Act, 2008, Revised 2012. These legal frameworks are intended to help the fulfilment of the TVET Policy aims of effectively developing a coordinated and

synchronized sub-sector that is able to produce resourceful youth who are equipped with the right values and attitudes needed for the prosperity and growth of various economic sectors. The study investigated levels of awareness and familiarity with available policies and/or services in TVET institutions among policymakers and TVET technical personnel. Most respondents were aware about industrial attachment policies (92.9%), industrial attachment liaison officers (85.7%), and had career counseling departments (80.4%). However, fewer respondents were conversant with sexual harassment policies (50.0%), community service policies (46.4%), and safeguarding policies (35.1%).

Discussions on policy frameworks and their role in WYD revealed that not all stakeholders were conversant with existing policies. Those who were aware of the existence of policies that promote WYD posited that they were either spearheaded by institutions mandated to re/design the curriculum or partners with interest in quality education in the country. Despite their awareness of the policies, some stakeholders had little or no concrete knowledge of key highlights of such policies. Some of these key highlights are promotion of exchange programs between and among institutions, partnership with other education stakeholders and government involvement.

The respondents who knew about government interventions in soft skills felt that this was a move designed to shift away from merely meeting the labor demand, to promoting whole youth development. This is evidenced by the development of a competence-based education curriculum that is being rolled out in the country's TVET institutions.

The extent to which TVET curriculum integrates WYD

WYD was not perceived as adequately integrated within the TVET curriculum. Eighty percent of institutional heads and instructors thought the level of coverage in the curriculum of soft skills (e.g. relationships, sexual and reproduction health skills) was lower than the coverage of academic/technical skills. The extent to which the WYD approach was integrated in the curriculum was captured in various programs available in the institutions. Ninety percent of institutional heads thought academic/technical skills documents were available compared with the 70% and 60% who thought the same about documents on core values and social-emotional skills, respectively. A similar pattern was observed among TVET instructors.

The management structures of TVET institutions includes the institutional head (also called Principal, Manager or Director - these terms are used interchangeably) who is the accounting officer, supervisor, overall planner, and coordinator of all the institution's activities. The deputy head of institution is responsible to the head for teaching and administering teaching functions, human resource management, administration, and financial control and management. In addition to these responsibilities, the deputy also acts as the institutional head when necessary. Department heads are responsible to heads of institutions for their various departments, while teachers/instructors are mandated to teach various courses/programs as assigned by the department heads (Teachers Service Commission, 2007). TVET institutions are managed by a Board of Management (BoM). The institutions also have a students' council that interacts with the management on behalf of the student community.

TVET managers said that about 65% to 99% of listed activities perceived to nurture WYD skills such as life skills, social-emotional skills and core values, happened in their institutions through various instructional approaches adopted by instructors and other out-of-class activities like debating events for students to constructively critique their peers' work. The three top activities mentioned by over 95% of the institutional heads included: providing students with opportunities to practice skills acquired at work; teaching students to be aware of self and others; and assigning students time-bound tasks. These three tasks focus on learning to learn, developing relational skills and time management.

Similar observations were made by TVET instructors who mentioned encouraging teamwork among students and presenting their work to classmates as some of the key ways in which soft skills are developed. The least mentioned activities were: opportunities for trainees to complete community service; exposure to debates and presentations that generally sharpen communication skills; and peer review or providing critiques of fellow students' work.

The qualitative data show integration of soft skills in the curricula of TVET institutions, among them entrepreneurship and communication skills. Despite this, TVET stakeholders felt that such integration does not comprehensively meet the changing and dynamic labor market skill needs driven by the private sector. However, the stakeholders acknowledge the positive steps being undertaken by the government to bridge this gap, including incorporating components of soft skills in the on-going curriculum reforms with a view of 'wholesome development of learners'.

Institutional capacity to develop core values and capabilities

A vast majority of the instructors (over 90%) felt that they were well equipped in terms of expertise to run the main courses they teach. More male instructors (93%) felt better equipped than female instructors (89%) and there was no real difference between public and private institutions. To further investigate existing capacities, instructors were asked to rate how well they had been prepared to teach academic and technical skills, life skills, core values, and social-emotional skills. The perception on the level of training in these skills was highest for life skills (60.8%), and lowest for social-emotional skills (50.0%). This means that between 40% and 50% felt they had a gap in their training, highlighting the need for improved training across the five skills groups.

Qualitative discussions attributed the low levels of instruction for some key groups of skills to the lack of clarity in the curriculum around WYD. The curriculum places more emphasis on the development or production of technical skills over soft skills and core values. Additionally, assessment procedures, pedagogical practices, inadequate prioritization of soft skills by institutional leadership and the insufficient coverage of soft skills in the instructor training curriculum also hamper the development of such skills in TVET institutions. This contributed immensely to the low capacity in training of soft skills and core values within TVET institutions.

TVET institutions are usually organized to deliver a centrally developed curriculum. To promote WYD, some implement exchange and collaboration programs for their students. Students meet to exchange ideas and work on projects together, especially in national competition events. These programs enhance both technical and soft skills as they foster teamwork and nurture competition among participating and partner institutions.

Key influencers of WYD in TVET in Kenya

Among TVET instructors, institution-related factors (such as facilities, machinery or materials, 41.2%; and workshops or laboratories, 39.2%) present the biggest hindrance in fulfilment of their duties. Conversely, student-related factors – for example student gender composition and student religious background – offered the least hindrance. Overall, the level of hindrance to instructor duties based on the factors under investigation, was perceived to be higher in public institutions than private ones.

The desire for acceptance among peers or wider community was key for students. Students brought up the importance of soft skills in building good working relationships, problem solving, and self-awareness among other aspects of social wellbeing. Soft skills facilitate learning to learn, and in their own words '… *makes you marketable and you can easily identify your weaknesses and a gap that you yourself can fill' [IDI-R2]*. Other key influencers for the students included morality, emotional management and religious affiliation. Religious affiliation was mentioned as key to WYD in TVET, perhaps due to the link between religion and core values, such as integrity and '… *relating with others in harmony'*.

The extent to which students going through TVET exhibit WYD capabilities

WYD capabilities were investigated through assessments of students' perceptions, understanding, preferences and confidence in selected values and life skills, functional literacy, functional numeracy, and digital learning. Most students who agreed or strongly agreed with positive statements about themselves rated dependability as their core value (89.9%), followed by loyalty (89.2%), openness (82.9%), and persistence (75.6%). Less than half (46.1%) of the students who agreed or strongly agreed with positive statements about themselves rated trustworthiness as their core value.

Functional literacy, functional numeracy and digital learning were assessed through the ability to acquire and use information from written text, ability to apply simple mathematical operations based on some information describing a product, and demonstrating how to operate a mobile phone to execute simple tasks such as sending text messages. Student performance was highest in digital learning with about four in every five students demonstrating correctly how to perform all the digital learning tasks.

Regarding functional literacy, slightly less than half (45.5%) of the students answered all the items correctly. Student performance was very low in functional numeracy, with just about one in five (21.4%) answering all the items correctly. In one of the counties, no student answered all the items correctly. Further analysis of disaggregated data showed that the scores were generally better for male students, for students in private institutions and those in national polytechnics.

Performance in life skills and social-emotional skills tasks mirrors that of functional literacy/numeracy and digital learning – that is the scores increased by course/program level and improved household socio-economic status (SES). This means that the higher the program/course level, the higher the score. This could perhaps be attributable to the fact that higher level programs required stronger qualifications, so students enrolled in these programs possessed better academic abilities which could have led to improved performance. Similarly, students from households with higher SES are more likely to have been exposed to various life and social-emotional skills prior to and during their stay in TVET institutions, explaining their better performance compared to their peers from lower SES backgrounds.

To assess understanding of the life skills/emotional skills among students, a case study involving everyday social interactions was presented to them. They were asked how they would handle issues in the story involving problem-solving and decision-making, coping with stress and emotions, peaceful conflict resolution, interpersonal relationships and communication. The results show that understanding of life skills/social-emotional skills was slightly better among female students (77%), students attending private institutions (77%); and those in national polytechnics (82%). Performance of first and final year students was exactly the same (74%) which could imply that the impact of TVET institutions on these skills is limited. Additionally, performance on these skills tended to vary with student household SES levels, with the smallest (69%) proportion of students correctly scoring all the items belonging to the bottom SES quartile.

Implications of the findings

There is room to further strengthen uptake of the WYD approach and capabilities among TVET instructors and students. TVETA and National Vocational Certificate in Education and Training (NAVCET) in consultation with other key stakeholders, such as industry, have a role to play in developing effective strategies for adoption of WYD. Such strategies could include improving WYD in curriculum implementation, strengthening the capacity of TVET instructors to use WYD during instructional delivery, and enhancing peer to peer support among students.

Other than the digital literacy domain, TVET students demonstrated low acquisition of functional literacy and numeracy, as well as social-emotional skills. While these skills are traditionally acquired through instruction in a classroom setting, institutions could utilize digital technology to access learning resources in these areas, utilize cooperative learning and peer-to-peer reviews, as well as practice the skills in workplaces in a formalized program.

Interactions between instructors and training facilities, as well as instructors and students play a key role in whole youth development in TVET institutions. The former (instructor-training facilities interaction) was found to be inhibiting. While it may be difficult to have adequate and effective facilities in each institution due to budgetary limitations, it is possible for the institutions and TVETA to train instructors on adaptive techniques that could help them optimize the utilization of existing facilities. There is also the possibility that the machinery and facilities found in industry would complement those found on-campus. For this to work well, institutions will have to formalize relations with the private sector.

Further areas of research could include establishing the quality of the WYD aspects that were observed in the TVET institutions. This may help explain, for example, why the observed preference of social-emotional skills in TVET did not differ between first and final year students. It would also be useful to generate case studies of institutions and students who were found to be strong in WYD with a view to understanding what it takes to champion wholesome youth development in different contexts.

1 Introduction

This report covers a study by African Population and Health Research Center that was conducted among youth aged 15 to 25 years-old attending technical and vocational education and training (TVET) institutions in nine counties in Kenya. The study examined the extent to which: (a) youth in Kenyan TVET training programs exhibit whole youth development (WYD) traits such as life skills, social-emotional skills, core values, academic skills (functional literacy and functional numeracy) and digital learning skills; (b) TVET institutions in Kenya focus on WYD; and (c) the current TVET policies and curricula embody WYD skills.

Educational attainment and training on their own are not necessarily a good measure of labor market success as they do not always take into account the heterogeneity in the quality of education and training programs or the mix of individual skill sets acquired. Being an educated person is associated with having a certain command of a curriculum, and knowledge of theories and facts from various disciplines, all of which are necessary for success in the labor market. But as Gracia contends, the term educated also suggests a more far-reaching concept associated with individuals' full development including whole youth development (Gracia, 2014). Other terms used to describe these skills include soft skills, personality traits, non-cognitive abilities, character skills, and socio-emotional skills (Heckman & Kautz, 2013).

In the Kenyan TVET context, the skills are referred to as basic competencies (TVETA, 2019). These skills are important in understanding whole youth development (WYD). However, the extent to which youth in TVET institutions exhibit these skills is not well-documented, due to the low emphasis placed on them during curriculum implementation, as they are not examinable.

1.1 Technical and vocational education and training

Though there is no unanimous definition for the term TVET (Tripney, 2013), in its 2004, 2006, 2009 and 2010 reports, UNESCO uses   it as 'a comprehensive term referring to those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life.'

This study is in agreement with that definition, which will serve as a reference point. Moreover, the term has been recognized in other scholarly works which further strengthens its applicability (RSA, 2008, 2013). TVET therefore, is a learning experience that is applicable to the working environment and occurs in various learning environments, including the informal, formal and non-formal sectors. The principal role of TVET is to provide [young] learners with capacities that can widen their lifetime opportunities. TVET institutions play a role in developing trainees for the work environment and also offer them the skills needed to access and retain decent (self-) employment (UNESCO-UNEVOC, 2013a).

The trend towards higher levels of youth unemployment in Africa is a major concern for many governments. The World Bank maintains that many young African graduates are not work-ready. The need to bridge the mismatch between educational training and labor market demands necessitates a re/design of programs offered in TVET institutions. Various African governments have increased their efforts to strengthen the ability of TVET institutions to promote WYD so that young people are more work-ready, in the wake of worsening youth unemployment in many developing countries '–(Afeti, n.d)

[4] UNESCO-UNEVOC (2006). Orienting Technical and Vocational Education and Training for Sustainable Development: A Discussion Paper
[5] UNESCO-UNEVOCInWEnt (2009). Reorienting TVET Policy towards Education for Sustainable Development. Meeting Report
[6] UNESCO-UNEVOC (2010). Integrating Sustainable Development in Technical and Vocational Education and Training Six Case Studies from Southern and Eastern Africa

1.2   TVET institutions in Kenya

There have been recent and widespread calls for comprehensive enhancement of national capacity in skills development through the TVET sub-sector '–(Afeti, n.d). TVET institutions provide the opportunity to produce skilled graduates for sectors with skills shortages such as power and energy plants, large public works, construction, water distribution and sanitation systems, hospitality and agro-processing   '(Afeti n.d). TVET institutions are perceived to offer youth the best avenue to acquire the necessary technical, academic (cognitive) and life skills as well as values and social-emotional skills that are aligned to the labor market.

Another important feature about TVET institutions is that while they seek to equip youths with skills for self-reliance, their eligibility criteria for enrollment are not as stringent as those for universities and colleges. Their costs are lower too. For instance, while part of the cost for university or college programs is borne by the student, parent or guardian, the cost of TVET education is expected to be fully covered by the government.

Unfortunately, as reported by stakeholders during the validation workshop, this government funding is hardly released to institutions or students for reasons that are unclear. In addition, many potential trainees who would enroll in TVET are not always aware of this funding opportunity. This relative ease of access and the focus on technical as well as soft skills provide a unique opportunity for TVET institutions to support the skills transformation agenda (development of 21st century skills) in Africa by providing work-ready graduates, especially in sectors with personnel gaps. It is vital to have well-functioning TVET systems to equip Africa's existing and potential workforce with the skills needed to address the continent's numerous development challenges.

Like many other African countries, Kenya recognizes the importance of TVET institutions in the alleviation of its development challenges, including high unemployment. Data from the Kenyan TVET governing body – the Technical Vocational and Education Training Authority (TVETA) – indicate that of the 1,432 public and private TVET institutions, 981 are accredited, 271 are waiting accreditation, and another 180 have been recommended for improvements before accreditation. TVET institutions can be further categorized as Technical Training Institutes (TTIs) and Vocational Training Centers (VTCs).

Most TTIs are private-owned and run and appear to be centered in major urban areas, perhaps to attract more students from the populous urban centers. To a large extent, they are run as for-profit institutions. This narrative is however likely to change if the government policy of increasing TTIs at national, county and constituency level is realized. The policy's goal is to enhance access to TVET through establishment of more TTIs as well as to promote equity by providing access to girls, minority groups, persons with disabilities and marginalized groups (Ministry of Education, Science and Technology-MoEST, 2014; Ministry of Education, 2019). On the other hand, VTCs are mostly owned or run by government and faith-based organizations and are found in both urban and rural areas.

The national government is responsible for the approval and registration of TVET institutions as well as development of TVET education standards, policies, examinations and curricula. County governments have an integral role to play as they enter into agreements with the national government on how to implement any policy pertaining to TVET education development.

[7] www.tvetauthority.go.ke/institutions
[8] http://www.tveta.go.ke/acredited-institutions-2/
[9] http://www.tveta.go.ke/accreditation-in-progress/

Some of the TVET services previously undertaken by the national government have since been devolved to county education executive committees. TVET institutions are categorized in terms of the course-levels they offer. In this categorization, national polytechnics (NPs) mostly offer technical diplomas and technologist degrees (in collaboration with universities), while technical universities train technologists, and award them (technologists) post-graduate degrees. Technical Teachers Training Colleges (TTTCs) offer diploma courses/programs; Technical Colleges (TCs) offer craft and technician programs/courses and award Craft Certificate (CC) and Technician Diplomas (TD), while Vocational Training Centers (VTCs) offer artisan courses and award artisan certificates.

The entry requirements for students seeking to pursue various courses and course-levels in TVET institutions are: C- (minus) for Diploma, D (plain) for Craft Certificate (CC), and E for Artisan Certificate (AC). In an effort to increase uptake of TVET courses/programs by students, the government has provided complete funding for TVET programs so as to cater for the financial needs of students from economically disadvantaged backgrounds and boost enrolments in post-secondary institutions. The total fees charged at any particular TVET institution is set at a maximum of KES 56,420.00 ($ 543.86) The government pays KES 30,000.00 ($ 289.20) directly to TVET institutions, while the remaining KES 26,420 ($ 254.68) is paid by the Higher Educations Loans Board (HELB) – a government body mandated with provision of student financial support/tuition which becomes repayable once a student beneficiary secures employment.

In terms of management, TVET institutions are managed as follows: Technical Universities (TUs) are established and managed in accordance with the provisions of the 2012 University Act; TTTCs and National Polytechnics (NPs) by Councils; Vocational Training Centers (VTCs) and Technical Colleges (TCs) by Boards of Governors (BoGs). Similarly, staff at TUs, NPs, and TTTCs are managed by the respective Councils, whereas TCs and VTCs' staff by BoGs (Government of Kenya, 2012a).

There are three types of TVET institutions found in Kenya: formal, non-formal and informal. This is probably due to the high number of young people in need of work skills who cannot be absorbed solely by the formal training sector. Formal TVET institutions offer courses in computer and business-related studies together with technical areas of training. The non-formal provide short courses to 'unemployed school-leavers in specific skills related to income-generating opportunities' (UNESCO & UNEVOC, 2013). Finally, the informal sector, commonly referred to locally as '*jua kali*' in Swahili (meaning 'hot sun'), uses a training approach based on the apprenticeship model. The *jua kali* (informal) sector currently encompasses small-scale entrepreneurs and workers lacking property rights, credit, training, and working in modest conditions (UNESCO & UNEVOC, 2013).

Formal TVET programs in Kenya are mainly offered in:

- National Polytechnics
- Technical and Vocational Colleges
- Vocational Training Centers.

[10] http://www.tveta.go.ke/institutions-recommended-for-improvement/
[11] https://www.kuccps.net/?q=content/third-continuous-tvet-placement-government-sponsored-diploma-and-certificate-courses (Accessed: 23rd/04/2019)

In a bid to address the challenges – overcrowding of classes due to excessive enrollment, teacher shortages, and delayed government/state funding among others – brought about by free primary education, the government has embarked on a mission to enhance the capacities of TVET institutions (Wanjohi, n.d.). With free primary education, more learners have been enrolled in primary schools and as they transition to secondary school, more space is needed to accommodate them in universities and mid-level colleges including TVET institutions.

The government is focused on strengthening the TVET sub-sector, including the quality of training, to cater for students unable to transition to secondary schools or university. Examples of recent government initiatives towards this include providing the resources required for adequate staffing and infrastructure to 298 departments in TVET institutions during the 2018 financial year as well as the plan to establish at least one national polytechnic in each of the 47 counties in Kenya.

Currently, there are only 11 national polytechnics in the country, despite the constantly rising transition rates from primary to secondary school. The government's Free Primary Education (FPE) program has resulted in primary completion rates (PCR) rising from 79.3% in 2014 to 82.7% in 2015, and consequently to 85% in 2017. This saw the primary to secondary transition rate increase from 76.1% to 85% in 2017, possibly due to the government's move to fund examination fees for all students sitting their final examinations in public primary schools (Ministry of Finance, 2017; Ministry of Education, 2019).

This transition rate is just slightly below the 90% mark targeted for 2018 but still signifies a positive trend towards meeting the government's goal of 100% transition (Ministry of Education, Science and Technology, 2015). All this means that more TVET institutions are needed to accommodate the ever increasing potential TVET trainees.

Furthermore, the government seeks to build the capacity of the entire TVET governance structure, including the Directorate of Vocational Education and Training (DVET), Technical Vocational Education and Training Authority (TVETA), Directorate of Technical Education (DTE), Curriculum Development Assessment and Certification Council (CDACC), Kenya National Qualifications Authority (KNQA), Technical Vocational Education and Training Fund (TVETF), and management of TVET institutions.

The government focus on TVET education is informed by the need to reduce youth unemployment by aligning the sector to Kenya's development ambitions expressed in the national economic blueprint, Vision 2030, and the Big Four Agenda on affordable housing, food security, universal healthcare and enhanced manufacturing (Institute of Economic Affairs, 2017). The government views the TVET sub-sector as an avenue for meeting this goal, a perception shared by students attending TVET institutions.
Similarly, the government is keen on building the capacity of TVET trainers by upgrading their skills to be in line with the needs of their related industries, by offering them the pedagogical tools needed to deliver the national competency-based curriculum.

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[12] Anthony Wanjohi (n.d). Challenges Falling the Implementation of Free Primary School in Kenya:
  http://www.kenpro.org/papers/challenges-facing-free-primary-education-in-kenya.htm (Accessed: 2nd/04/2019

1.3 Whole youth development skills

In the last two decades, WYD, also referred to as positive or holistic youth development and adolescent subjective well-being has gained increased attention (Sun & Shek, 2010). Subjective well-being (SWB) not only supports positive development but is also viewed as a contributory factor for improved mental health –(Park, 2004). Past work on WYD contends that it could be advanced through enhancement of one's social support systems, competencies, and SWB, even as it mitigates against an individual's poor predisposition, exploitation and stress –(Meyers, 2003).

As the name suggests, whole youth development emphasizes holistic growth of young people which encompasses a complex web of social, emotional, and cultural development and awareness. As such, whole youth development addresses the needs of young people – including the desire to be valued and useful, spiritually grounded, to have life skills, and to be cared for and secure – through enhancement of their capacities. WYD helps them nurture their own talents, increases their self-respect, and facilitates their transition to adulthood (Pagliaro, 2001). In the context of Kenya, with high youth unemployment, WYD skills are deemed key in helping young people transition to the world of work, retain employment and remain productive.

Moreover, WYD will enable the youth to improve their political and socio-economic wellbeing, while strengthening and infusing values and heathy behavior (Ministry of Public Service, Youth and Gender Affairs, 2018).
WYD is therefore the holistic development of academic and technical skills and the non-cognitive social and emotional skills that will help young people to succeed in various settings (Damon, 2004). This study thus sought to understand the capacities, systems and structures in place within Kenya's TVET institutions that enhance access to WYD.

1.4 Purpose of the study

This study examined the extent to which Kenyan youth in TVET training curriculum exhibit technical, academic/cognitive and life skills as well as values and social-emotional skills. The study also assessed the extent to which current TVET policies and curriculum embody the tenets of WYD.

The objectives of the study were to:

I. Examine the extent to which TVET policy frameworks promote WYD among youth;
II. Determine the extent to which TVET curricula integrate WYD;
III. Assess the existing capacities within TVET institutions for the production of core values and capabilities;
IV. Understand the key influencers of WYD in TVET institutions; and
V. Examine the extent to which students in TVET institutions exhibit WYD capabilities in Kenya.

1.5 Justification for the study

About 40% of Kenyan youth join the labor market after completing training in TVET institutions (Hall, 2017). However, there are concerns that skills acquired in the training institutions do not meet the market expectations as youth graduating from TVET have difficulties accessing, creating and retaining jobs. This mismatch between youth skills and labor market expectations make it challenging for young people to succeed in the world of work. There is a dearth of research about the level of academic skills and non-academic skills acquired by youth in Kenya's TVET institutions. The APHRC TVET study sought to address this gap in order to inform practice on WYD in TVET and to inform policy, including the skills development policy in Kenya.

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[13] https://www.nation.co.ke/news/education/State-to-enroll-1-million-students-in-technical-colleges-/2643604-4676206-9yotrp/index.html (Accessed:19/02/2019)
[14] https://www.nation.co.ke/news/education/TVET-gains-as-it-forms-part-of-Big-Four-agenda/2643604-5212894-911xca/index.html

2 Study methods

This chapter outlines the research methods used in the study and related issues.

2.1 Study sites

The TVET study was conducted in nine counties in Kenya namely Garissa, Kakamega, Kisumu, Meru, Mombasa, Nairobi, Nyeri, Turkana, Uasin Gishu. The counties were selected specifically due to the presence of national polytechnics – except for Turkana County, which has no national polytechnic – and the need for representation of marginalised youth in the counties. The counties are spread across seven of the previous eight provinces (Nairobi, Coast, Nyanza, Rift Valley, Central, North Eastern and Western) of Kenya and therefore achieves a reasonable geographical coverage.

However, a study design involving the nine counties was considered potentially problematic as it excludes youth facing extreme adversities or significant challenges and who are often not part of education systems. Consequently, two counties with national polytechnics in an earlier listing of the counties were replaced with two counties in marginalized areas. Before the current administrative boundary system (counties), the country was divided into eight provinces (Nairobi, Coast, Rift Valley, Central, Eastern, North Eastern, Nyanza, and Western). Initially, the nine counties where the study was to be undertaken were in six of the eight provinces, meaning representation was reasonable.

However, there were counties that were in close proximity to each other which both had national polytechnics and were located within a former province, necessitating replacement with other counties.

The replacement counties would represent marginalised populations not included in the sample and preferably, from one of the former provinces that were not initially included. Using this guideline, the candidates for potential replacement were: (i) Kisii and Kisumu – because they both fall in the former Nyanza province, and (ii) Trans-Nzoia and Uasin Gishu – because they both fall in the former Rift Valley province and are close to each other. Kisumu and Uasin Gishu were retained in the sample because of their ethnic diversity, size, mix of urban and rural populations and (for Kisumu) the preference by most students to study in a city in Western Kenya with adequate facilities and services. Garissa and Turkana were included purposively in the sample to replace the two counties that were dropped and to represent marginalized areas.

Kenya has eleven national polytechnics, though, not all were selected for the study. The study was rolled out in eight purposively selected counties that have national polytechnics and one county in a marginalised area that has no national polytechnic. Any national polytechnic in the nine counties was automatically included into our study sample. The selection included a random sample (50%) of the technical training institutes and vocational training centers in that county, while taking into consideration representation of the different types of institutions (private/public). This allowed us to study all the national polytechnics in the counties that have them as well as a representative sample of different institutional types and categories. Descriptions of the study sites and TVET background information are presented in Appendix 1.1.

2.2 Sampling method

The study used a cross-sectional survey design to collect a large volume of structured, semi-structured and unstructured data. Youth aged 15-25 years attending the three categories of TVET institutions that are accredited by TVETA were targeted for participation. Student ages were verified from institutional records available from the registrars or heads of the institutions. The three categories of TVET institutions are: national polytechnics, technical training institutes and vocational training centers.

Quantitative Sampling

The sample size was estimated using two main assumptions: (1) that the proportion of students attending TVET institutions and exhibiting requisite soft skills is 50% - based on a study done by Muthoni et al. (2013) which showed this proportion ranged from 32% to 75%; and (2) a precision of 5% (how close estimates from different samples are to each other) and design effect of 1.1 given the variability that may exist due to measuring soft skills using students nested within TVET (clustering effect). Following the formula for estimating prevalence as provided by Pourhoseingholi, Vahedi and Rahimzadeh (2013), and assuming 95% level of confidence, the estimated minimum sample size was 423 TVET institutions spread across Kenya.

In each of the nine selected counties, a national polytechnic in that county was automatically selected into the study sample, except for Turkana County which has no national polytechnic. This enabled the study team to study eight of the eleven national polytechnics plus a representative sample of institutional types and categories in those counties. Turkana County despite not having a national polytechnic, as mentioned above, was purposively included in the sample to represent marginalized areas and to represent the northern part of Kenya.

There were 364 TVET institutions in the nine counties meaning that the study sample which involved at least 50% of them, included 182 institutions. Though less than the intended 423, this number was sufficient for an exploratory study like this one as the sample was large enough to allow statistical analysis. In each institution, two training programs with an adequate number of students for first year (5 or more) and final year (5 or more) classes were randomly selected. This was done with the assumption that students who make it to the final year are strong in their study area, and have the technical know-how for purposes of this study. They were an essential demographic as they were about to enter the job market. They were key respondents as they would help in understanding the skills gained that prepared them for the job market, having gone through the entire length of their respective programs.

Ten students (five first year and five final year students from each gender) from the two focal programs were randomly selected. There were certain cases where meeting this gender composition was difficult as some programs were predominantly male forcing the team to work with the available gender representation. Such cases would be mitigated against by including an equal number of the under-represented gender in the next/following institution. Where an institution's or institutions' program had less than ten students, additional program(s) were selected at random, though this rarely occurred. The TVET student sample selection took gender and study program into consideration. In each selected TVET institution, 20 students (10 in their first year and 10 in their final year) were randomly selected, interviewed and assessed on cognitive and non-cognitive skills. Since 182 institutions were to be visited, the maximum student participation was expected to be 3,640, and the study achieved a success rate of 94.8% (3,452).

Students in their first and final years were selected to estimate the impact of the TVET curriculum in WYD skills.

Two instructors, one from the first year class and another from the final year class were selected from the two study programs. The instructor sample size was expected to be 364, but the study achieved 95.3% (347) of the target. For the institutional managers' questionnaire, there were two sets of items – part A and B. A total of 182 managers were targeted for this study and a 94% (171) success rate was achieved for part A while part B had a success rate of 82.4% (150). The reduction in number (between part A and B) was due to the refusal to participate in Part B items which were perceived to be sensitive – this mainly affected private institutions in Nairobi County. The affected items in Part B sought responses on financial performance of institutions, enrolment records, number of graduates produced per year as well as their respective performances, and information on their graduates' placement in the job market. Table 2.2 and Table 2.3 provides details on achieved samples.

The sample's gender composition was 57.3% female and 42.7% male, with majority of the students (72.7%) found in private institutions and 27.3% in public institutions. The small number of national polytechnics in the country explain why the NPs' sample was low (4.6%) compared to technical training institutes (74.1%) and vocational training centers (22.2%) respectively. Table 2.1 highlights this information.

Table 2.1: TVET Study Sample Profile

Characteristic	Category	# of Students	Percent (%)
Student Sex	Male	1,474	42.7
	Female	1,978	57.3
TVET Type	Private	2,509	72.68
	Public	943	27.32
TVET Category	National Polytechnic	160	4.63
	Technical Training Institute	2,559	74.13
	Vocational Training Center	733	21.23

The obtained sample per county places Nairobi County at the top with 47.1%. This was expected given that 50% of the study sample was drawn from Nairobi County. In second place was Uasin Gishu County (11.6%), while Mombasa County was third (8.7%). Turkana and Garissa Counties had 2.6% and 2.2% respectively, a result that was expected as both counties had the lowest number of institutions visited. Table 2.2 provides detailed information on achieved sample per county.

Table 2.2: Sample per county

COUNTY	# of Students	Percent (%)
Nairobi	1,624	47.05
Uasin Gishu	400	11.59
Mombasa	300	8.69
Kisumu	260	7.53
Kakamega	260	7.53
Meru	240	6.95
Nyeri	202	5.85
Turkana	89	2.58
Garissa	77	2.23
Total	3,452	100

The obtained sample per county places Nairobi County at the top with 47.1%. This was expected given that 50% of the study sample was drawn from Nairobi County. In second place was Uasin Gishu County (11.6%), while Mombasa County was third (8.7%). Turkana and Garissa Counties had 2.6% and 2.2% respectively, a result that was expected as both counties had the lowest number of institutions visited. Table 2.2 provides detailed information on achieved sample per county.

2.3 Survey instruments

A suite of four questionnaires – student questionnaire, student assessment, instructor questionnaire, and institutional questionnaire – to assess WYD capabilities was developed in consultation with APHRC's research partners: Zizi Afrique, Dalberg Research, Aga Khan University as well as independent education consultants. All the four tools were first developed internally by APHRC's Education and Youth Empowerment's (EYE) team and then shared with partners for input. The final tools (all four, including the qualitative tools – FGDs, KIIs, and IDIs) were then validated by external education stakeholders including individuals working in the Ministry of Education's (MoE) TVET sub-sector, as well as representatives from the Curriculum Development Assessment and Certification Council (CDACC), Teachers Service Commission (TSC), and representatives from the implementing partner – Zizi Afrique. The validated tools were then piloted with a representative sample before finalizing them.

The student questionnaire sought information on:
- student's background and/or demographic characteristics;
- parental background (demographic characteristics)
- the current training course;
- social activities;
- economic activities engaged in by student before joining TVET;
- their perceptions on skills, knowledge, core values and career opportunities;
- information about institutional support and capacity; and
- information about their training course's curriculum and their instructors.

The student assessment questionnaire assessed students':
- capabilities and values;
- soft skills, digital literacy, and functional literacy and functional numeracy.

The instructor questionnaire sought information from instructors about their awareness and perception of soft skills and core values. Under the soft skills and core values sub-themes, questions centred on understanding whether instructors had undergone training on academic/cognitive/technical skills, life skills, core values, and social-emotional skills.
Finally, an institutional questionnaire sought information from the institutional head/manager/director about:

- their demographic characteristics including date of birth, year of joining the institution, level at which they joined the institution, total years as trainer, and status of employment (contract or permanent);
- institution's background;
- institution's training programs;
- institution's facilities/equipment/resources;

- student enrollment;
- student performance;
- student employment status;
- training or teaching staff; and
- institution's budget.

The FGD tool sought information on various aspects of soft skills including: their understanding of the subject; their learning source; desired skills to attain; views and ranking of the skills and their importance; skills possessed by students in TVET institutions; coverage of soft skills training in TVET institutions; assessment methods for soft skills in TVET training programs; whether courses pursued by students in TVETs help them develop soft skills needed for employment; and recommendations to TVET institutions on how to help students relevant soft skills

The IDIs were conducted with policy makers affiliated to TVET education and sought information on: their understanding of soft skills; government policy on soft skills training in TVET institutions; soft skills that students should strive to have; importance of soft skills to current job/labor market; whether TVET institutions offer soft skills; training on soft skills in TVETs; government recommended methods for instilling soft skills in TVET training; resources available to TVET institutions for soft skills training; effectiveness of soft skills training in TVETs; government policy on soft skills assessment; instructors' levels of motivation/enthusiasm in supporting and/or training students on soft skills; and challenges hindering infusion of soft skills among students in TVET institutions.

Key informant interviews (KIIs) were conducted with county government heads of TVETs. In addition to the information from the IDI tool, KIIs also sought information on adequacy and relevance of resources for soft skills training in TVETs.

2.4 Field enumerators and piloting of tools

Piloting: Field enumerators were recruited for the pilot phase for training in data collection. Enumerators needed at least a high school level of education, be residents of the study counties, be fluent in the local language of the study area and have previous data collection experience, preferably with adolescents and youth. Given that electronic devices were used for data collection, digital competency for data collection was an important requirement. To ensure that only qualified and reliable field enumerators were engaged, preference was given to applicants who had been engaged in other projects in APHRC, preferably in the Education and Youth Empowerment unit.

During piloting, enumerators practiced through supervised group work, role plays and practice runs of the tools in three TVET institutions in Kiambu and Machakos counties which were not part of the study sample. The three institutions were: Kiambu Institute of Science and Technology (KIST); Machakos Institute of Technology (MIT); and Salvation Army Misieleni Youth Polytechnic in Machakos County.

APHRC staff involved in the supervision exercise worked closely with Zizi Afrique (partner organization). From this pilot for training enumerators, a total of 88 interviews were conducted: two institutional interviews; 16 instructor questionnaires; 70 student questionnaires, and 74 student assessments. The data was transferred to a database for analysis. It is important to note that student questionnaires (70), and student assessments (74) were combined in one tool – the student questionnaire. The four extra student assessments arose because four students did not participate in the student questionnaire, consequently the assessments were grouped as incomplete.

Piloting the tools: During the enumerators' training, a pilot was undertaken among students in Eastlands College of Technology to help enumerators familiarize themselves with the tools. This was particularly relevant for enumerators who had not participated in the pilot phase and did not have practical experience with the tools. It was important to get their experience and to incorporate any amendment(s) that they deemed necessary. The criteria for selection of enumerators who had not participated in the pilot followed the same principle as that in the pilot. This was to guarantee uniform understanding of the study tools. Enumerators in this study undertook both a pilot and a pre-test. The pilot was undertaken to help determine or identify an issue that necessitated redevelopment/redesign of the questionnaires/tools as well as the data collection software (Survey CTO). This was done earlier so that feedback from the exercise could inform revision of the final tools. A pre-test for this study was undertaken after incorporating all the issues raised in the pilot to understand how the tools/questionnaires worked after addressing corrections identified in the pilot. The difference between the pilot and the pre-test was in their purpose and the time conducted, although operationalization of the two was consistent.

Training: Training of enumerators took place in two different phases. There was training for the pilot, which only involved the enumerators in the pilot exercise. The second training was for all enumerators to be engaged in the main data collection and consequently was larger than the first. Enumerators who participated in the pilot exercise were part of the main study team trained in the second phase. The second phase of enumerators' training ran for five days, with the sixth day being the pre-test day. To ensure uniformity in understanding of the tools,

enumerators from all the study counties were trained in a central location with staff from Zizi Afrique (the partner institution) supporting some training sessions as facilitators. The data collection training for this study was held in September 2018.

The enumerators were trained on each of the TVET study tools and how to use electronic devices to administer them. They were also trained on sampling procedures and ethical issues to be observed during data collection. Enumerators were also trained on how to build rapport with the students, instructors and institutional heads and to administer the tools within a time frame that would not tire the respondents.

In addition, all enumerators observed and rated the same mock interview to attain an inter-rater reliability (IRR) score of 95% for each study tool. All practical exercises were followed by debrief sessions to ensure that all the enumerators had a common understanding of the tools and procedures. By the end of the training, all the enumerators were adequately versed in the study tools and methods, and confident and prepared to collect data.

2.5 Ethical approval and study authorization

Prior to collecting any data, the TVET study protocol was submitted to APHRC's internal Scientific Review Committee. Ethical clearance was obtained from AMREF Health Africa's Ethical Review Board, and a study permit obtained from the National Commission for Science, Technology and Innovation (NACOSTI). The ethical approval and the study permit were valid for a year.

A section of the study team also went ahead of actual data collection to identify the location of selected institutions and also to introduce the study to the institution heads. The pre-visits enhanced rapport between the research team and the institutional heads so they could request students to make themselves available on the day of data collection. In such cases, enumerators had ample time to interview respondents within the required time-frame in contrast to situations where learners either arrived late or not at all, impacting data quality. In the same breath, enumerators' team leaders helped the study team in making pre-visits. They visited institutions in the nine counties to inform the TVET heads about the study and seek their consent as well as to familiarize them with the study and study tools. The visit was also to familiarize the research team with the study locations as points of first-entry before spreading to other institutions in the counties of study.

Permission was sought from the County Executive Committee of Education (CECE) in the nine counties before field enumerators were allowed access to the TVET institutions. The CECE gave consent through letters to the respective TVET heads authorizing the study. Consent was obtained from all participants including students, instructors, institutional heads, and other key TVET stakeholders. The institutional heads and parents gave consent for students below age 18, while verbal consent was obtained from the students before each interview and assessment. Parental consent for students below the age of 18 was obtained during callbacks when minors were revisited in institutions following requests for interviews in the first visit.

2.6   Data collection

Like in the enumerator training, several measures were taken to ensure the quality of the collected data. These included installation of a data capture software with quality control measures which ensured that only values within the expected range were permitted. The software also barred missing values where none were expected and allowed observation of skipped entries where necessary. In addition, during data collection, senior research team members conducted random spot check visits to confirm adherence to procedures and the accuracy of information collected. The data collected were verified at the end of each day on site for accuracy and completeness, after which they were uploaded to a central server. Thereafter the data were synchronized and cleaned for inconsistency and missing values.

Building rapport with the institutional heads further assisted in ensuring the quality of collected data. A number of institutional heads personally took the time to help in the sampling process which ensured that only students and instructors who met the study criteria were included.

Moreover, research supervisors encouraged strong teamwork among enumerators and provided easy access between field teams and the study leadership to provide a direct channel of communication for any clarifications. Table 2.3 and Table 2.4 present the achieved data against the target sample size for each of the tools.

Table 2.3: Targeted and achieved sample sizes for each

County	Institution Part A			Institution Part B			Instructor Questionnaire			Student Questionnaire			Student Assessment		
	Targeted	Achieved #	%	Targeted	Achieved #	%	Targeted	Achieved #	%	Targeted	Achieved #	%	Targeted	Achieved #	%
Nairobi	90	79	87.8	90	66	73.3**	180	166	92.2	1800	1624	90.2	1800	1624	90.2
Mombasa	16	16	100	16	12	75**	32	29	90.6	320	300	93.8	320	300	93.8
Kisumu	13	12	92.3	13	12	92.3	26	23	88.5***	260	260	100	260	260	100
Kakamega	12	13	108	12	10	83.3**	24	26	108	240	260	108	240	260	108
Meru	12	12	100	12	12	100	24	22	91.7	240	240	100	240	240	100
Nyeri	11	11	100	11	11	100	22	22	100	220	202	91.8	220	202	91.8
Garissa	4	3	75	4	3	75**	8	6	75***	80	77	96.3	80	77	96.3
Uasin Gishu	20	21	105	20	20	100	40	43	106	400	400	100	400	400	100
Turkana	4	4	100	4	4	100	8	10	125	80	89	111	80	89	111
Total	182	171	94.0*	182	150	82.4**	364	347	95.3	3640	3452	94.8	3640	3452	94.8

Table 2.4: Qualitative data coverage

Tool	Target	Actual	Coverage (%)
FGDs	12	14	116
IDIs	5	5	100
KIIs	3	8	267
Total	20	27	135

NB: *The institutional questionnaire part A failed to meet the 100% mark due to refusals by some TVET institution owners, particularly private TVET institutions. The deficit was also attributed to the timing of the study as it coincided with end-year examinations period and institutional heads were busy with exam preparations;

** Response to part B of the institutional questionnaire was even lower than for part A as institutional heads shied away from responding citing restrictions by owners of institutions as the section was perceived to contain sensitive questions (on enrollment, yearly institutional budgets, budget utilization, graduation outputs, employment records of graduands etc.). This explains the below 90% mark Nairobi (73.3%), Garissa (75%), Mombasa (75%), and Kakamega (83.3%);

*** The below 90% mark for Garissa (75%) for instructor questionnaire was mainly attributed to instructors' absence from institutions (even after follow-ups) unlike for Kisumu (88.5%) which was a mix of both (refusal – 2 and absence due to sickness - 1).

2.7   Limitations of the study

This was an exploratory study and therefore it was not necessary to reach all of Kenya's 47 counties. However, an adequate number of national polytechnics (8 out 11) that enroll students from all parts of the country were included. Moreover, the fact that the study was rolled-out in both rural and urban areas ensured that the studies reached youth with diverse backgrounds.

The counties were selected purposively which means non-probability sampling could contribute to selection bias. However, the selection of individual TVET institutions in the counties was random which served to mitigate this bias. Moreover, the study was rolled-out in the country's major urban areas (Nairobi, Mombasa, and Kisumu) inhabited by nearly all Kenyan ethnic populations which would enhance the representativeness of the study's results. Overall, the findings are a good reflection of what is happening in the TVET sub-sector in Kenya.

Few studies have deeply explored the components of WYD in Kenya and this meant that the TVET study relied heavily on literature obtained from studies conducted in other countries for reference.

A selection bias is also possible as a few respondents were not comfortable with appearing in person for interviews citing privacy/confidentiality concerns. The reservation was further heightened by the research team's request to record interviews. The research team assured the respondents of utmost confidentiality by guaranteeing them that none of their identifying characteristics would be used in the report. Finally, this report uses primary data and reviewed literature is not exhaustive. Some of the data capture methods included 'self-reporting' and 'self-assessment' which are both known to suffer from response bias. Nevertheless, the large number of respondents enhanced the chance of capturing the true picture when the data is processed.

3 Characteristics of students and their perceptions on skills, instructors and TVET institutions

This chapter details information about the sampled students including their demographic and academic backgrounds as well as their satisfaction with aspects of their institutions and their perceptions on the importance of WYD for their future careers.

3.1 Students' personal characteristics

In total, 3,452 students aged 15 to 25 from 180 TVET institutions across nine counties in Kenya participated. As presented in Figure 3.1, about three in every five students were females (57.3%). Almost half were in institutions based in Nairobi (47%) and a vast majority were in private institutions (72.7%), which is not surprising since most TVETs in Nairobi are private. Almost half of the students were in their final year (49.2%).

On average, the sampled students were 21.4 years of age (Figure 3.2) but students attending institutions in Turkana (22.1 years) and Uasin Gishu (21.9 years) counties were on average noticeably older when compared to those attending institutions in the other counties. The 2016 Education Statistics show a moderate correlation of 0.6 between out-of-school children and overall age of TVET trainees. Uasin Gishu and Turkana had among the highest proportions of out-of-school students within our target counties – 20% and 60% respectively. It is therefore possible that there are contextual issues including high poverty levels in these two counties. In Turkana over 94% of the population lives below the poverty line while in Uasin Gishu over 51% live below the poverty line (Commission on Revenue Allocation, 2013). Within our nine target sampled counties, Turkana was ranked last in terms of least poor while Uasin Gishu was ranked seventh. Likewise, national polytechnic students were on average slightly older (21.8 years) than their counterparts from VTCs (21.0 years) and TTIs (21.5 years). This age difference was expected since the entrance criteria into NPs is typically higher than that in VTCs which admit learners from secondary schools and sometimes directly from primary schools. In contrast, NPs and TTIs admit learners after completing their secondary school education. This could contribute to the lower average age recorded by this category. Students from lower socio-economic households were on average slightly older (21.5 years for both) than their counterparts from households in the top SES quartile (21.2 years). Male students (21.6 years) were on average older than their female (21.2 years) counterparts.

Figure 3 1:   Distribution of sampled students
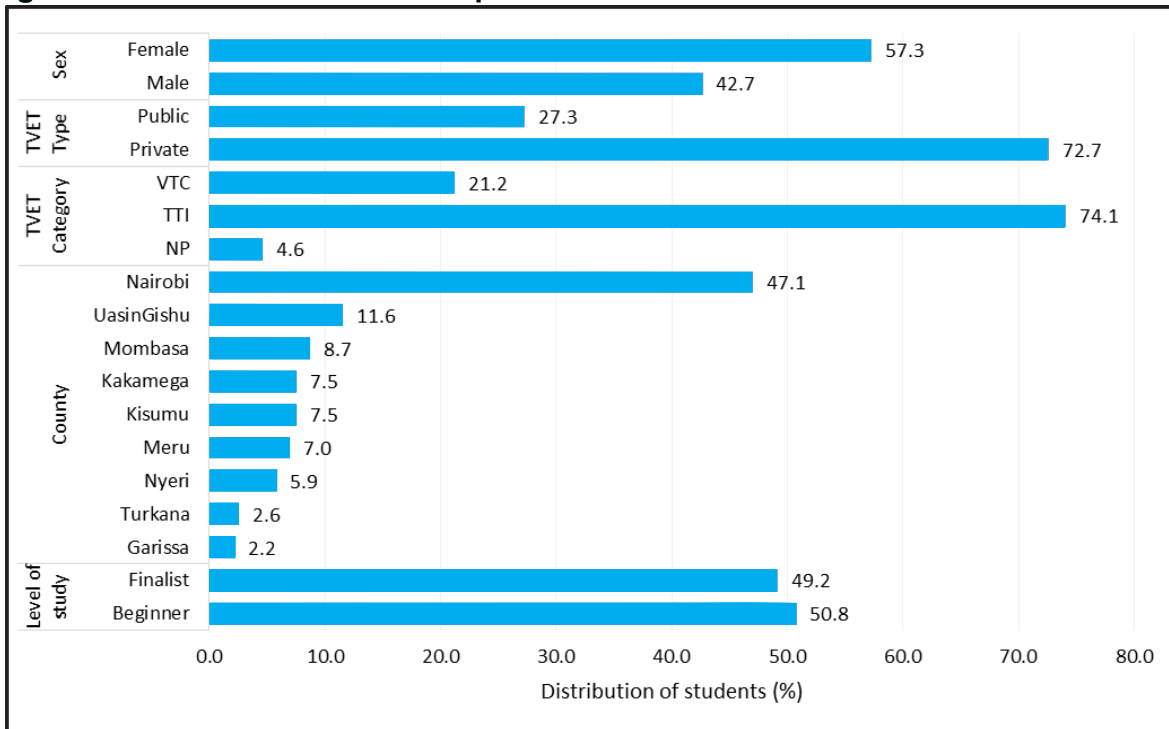
Figure 3 2: Students' age
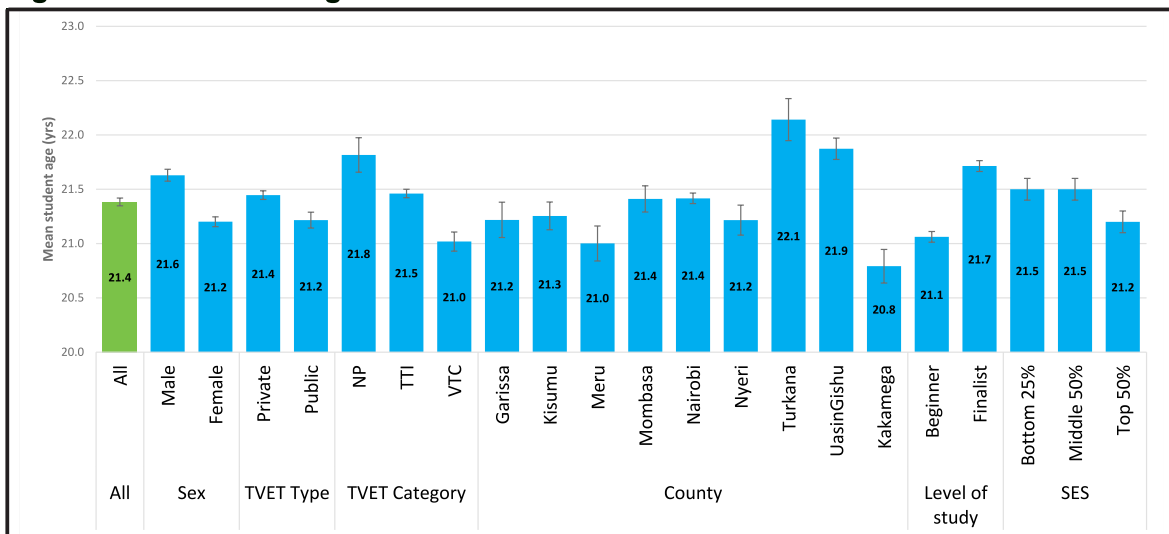
Students' parenthood: The proportion of students with children is shown in Figure 3.3. On average, about one in every ten students has at least one child (9.0%), majority of these being the female students – at 12.2% compared to male students at 4.4%. In VTCs, the proportion of students (12.7%) with at least one child was significantly different at 5% level compared to the TTIs (8.2%) and NPs (4.4%) with p-values of <0.001 and 0.001 respectively. Approximately two out of every ten students in Kisumu, Turkana and Kakamega counties had at least one child. In terms of socio-economic status, the bottom quartile had a higher proportion of students with at least one child. In case of Turkana, this could be explained by contextual issues related to poverty including low levels of parental literacy. Kakamega and Kisumu have high levels of teenage pregnancy and these young mothers could be re-entering the education system through VTCs (National Council for Population and Development, 2017).

Figure 3.3: Students' parenthood
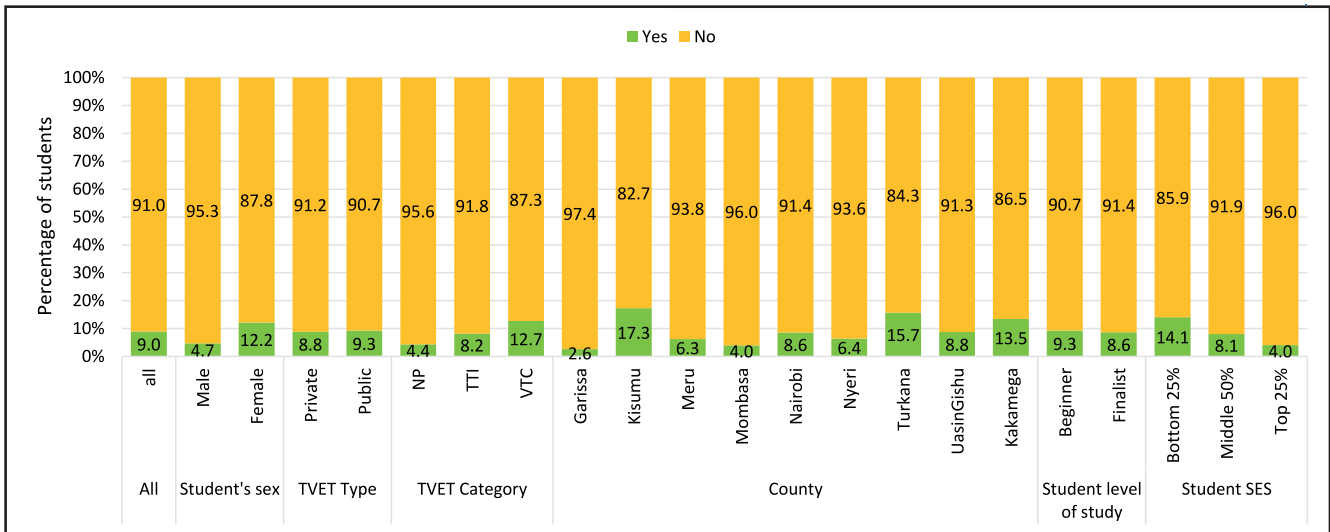
Students with special needs: Percentages of students who reported difficulties in seeing, hearing, remembering or concentrating, taking care of themselves, and communicating are displayed in Figure 3.4. These types of special needs have been associated with learning outcomes among students (Price, 2018; Ali & Rafi, 2016). The prevalence rate of special needs in Kenya from 2008 was 4.6% (National Coordinating Agency for Population and Development and Kenya National Bureau of Statistics, 2008), however the World Health Organization (WHO) placed the rate at 15% in 2011 (World Health Organization, 2011). The proportions of students who reported living with at least one of these difficulties (whether 'some' or 'a lot') by county are displayed in Figure 3.5. Majority of the students (89% and above) reported not living with any of these difficulties, although small proportions of them reported some difficulties with seeing (9.8%) and remembering or concentrating (3.8%). On

average, 15.9% of the students reported living with at least one of the mentioned difficulties. Incidences of these difficulties were more common among students attending institutions in Meru (21.3%) and Kakamega (20.0%) counties, and less common among students attending institutions in Mombasa (9.3%) county. There was not much difference by TVET type, although when viewed through TVET categories, there is a markedly higher proportion of students with various special needs in VTCs compared to those in NPs and TTIs. In terms of entry requirements, majority of students admitted in NPs join courses which require higher performance compared to those who join either the TTIs or VTCs. The prevalence of students with special needs in TVET institutions decreases by category level, which means prevalence levels are low in NPs and high in VTCs. It is therefore possible that VTCs are more accessible than NPs to potential students with special needs.

Figure 3.4:   Distribution of students living with special needs
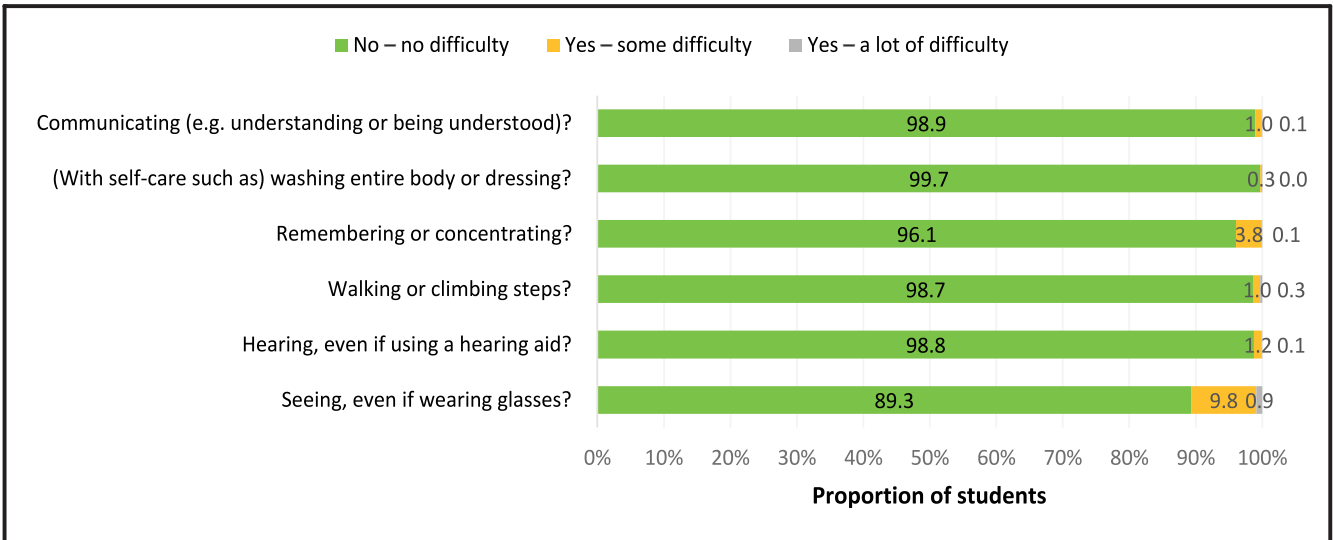
Figure 3.5:   Proportion of students reporting living with at least one special need
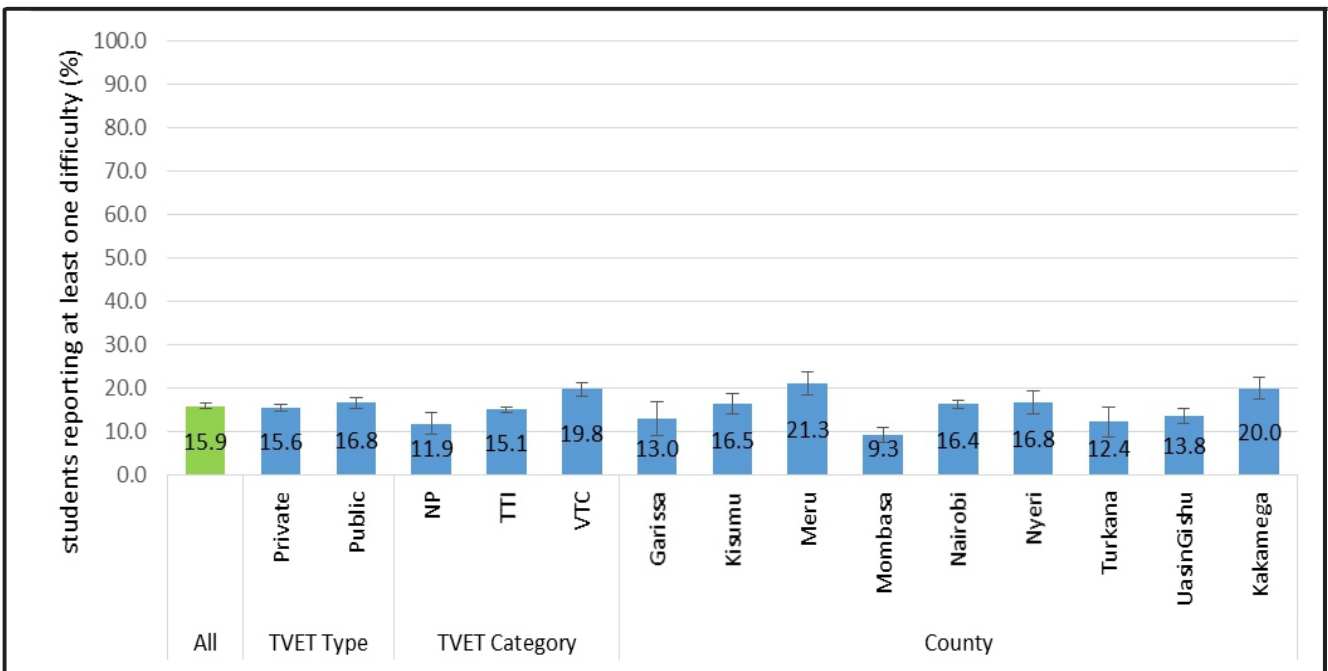
3.2 Students' education background

The students' education backgrounds are depicted in **Figure 3.6** and **Figure 3.7**.

Academic education completed: Overall, 12.3% of the students had no secondary education while nearly four out of five (79.0%) had completed secondary education but not tertiary education. Only a few of the students reported having dropped out of college or university before joining their current TVET (1.6%). A small proportion of students reported that they had completed college or university education (7.1%) before joining their current TVET institution. In terms of TVET type, the proportion of students without secondary education was markedly higher in public institutions (28.0%) than in private institutions (6.4%). This might be because the bulk of VTCs are public institutions which mostly admit students with no secondary education. Majority of the private institutions are TTIs.

As for the counties, the proportion of students without secondary education was highest in Kakamega (51.5%) followed by Meru (36.3%) and Kisumu (31.9%). All the students who were interviewed in Garissa County had completed at least secondary education. The level of students who had completed secondary education was much higher by far in NPs (97.4%) than in VTCs (60%). This was not surprising given that the

NPs tend to offer courses requiring higher entry academic qualifications. There was not much difference in the levels of prior secondary education by gender or year of study (first or final year). However, the higher the student's socio-economic status, the more likely they were to have completed secondary school.

Prior technical training: As displayed in Figure 3.7, overall, a vast majority of the students had no technical training prior to joining their current TVET institution (86.7%). A small proportion however, had completed some technical training at artisan, certificate or diploma level. Moreover, there was a small proportion (0.8%) of students enrolled in TVET institutions who had completed their undergraduate degrees. For example, in the accounting field, job seekers are required by recruitment agencies to have obtained a degree and an additional certification in accountancy. Taking an accountancy course at a TVET institution therefore improves their chances of getting a job. The levels of 'no technical training' were noticeably higher among students attending VTCs (92.0%) than among those attending TTIs (84.9%); higher among students in Garissa (96.1%) and Meru (95.4%) counties than among those in Nairobi county (81.3%); and much higher among students in the bottom SES quartile (93.6%) than among those in the top SES quartile (77.4%).

Figure 3.6: Students' highest level of academic education completed

Legend: No secondary education · Secondary Education · College/TVET/University drop-out · College/TVET/University education

		No secondary	Secondary	Drop-out	College/Univ
All		2	79	12	7
Student sex	Male	2	80	12	6
	Female	2	78	12	8
TVET Type	Private	2	83	6	9
	Public	1	68	28	3
TVET Category	NP	1	94		4
	TTI	2	84	6	9
	VTC	0	60	38	2
County	Garissa		97		3
	Kakamega		48	52	1
	Kisumu	1	62	32	5
	Meru	2	61	36	1
	Mombasa	1	86	8	6
	Nairobi	2	84	4	10
	Nyeri	1	83	10	6
	Turkana	1	87	6	7
	Uasin Gishu	2	91	3	5
Student level	Beginner	1	78	13	7
	Finalist	2	80	12	7
Student SES	Bottom 25%	1	65	32	2
	Middle 50%	2	84	7	7
	Top 25%	2	77	2	19

Figure 3.7: Students' highest level of technical training completed

Legend: No technical training · Technical training without certification · Technical training – artisan, certificate or diploma · Undergraduate degree

		No training	Without cert	Technical-certificate	Undergraduate
All		1	87	11	1
Student sex	Male	1	88	10	2
	Female	1	86	12	1
TVET Type	Private	2	85	12	2
	Public	0	91	8	1
TVET Category	NP	1	91	8	
	TTI	1	85	13	1
	VTC		92	7	
County	Garissa		96	4	
	Kakamega	0	92	8	0
	Kisumu	0	92	8	0
	Meru	2	95	3	
	Mombasa	2	92	5	1
	Nairobi	2	81	16	1
	Nyeri		87	12	1
	Turkana		93	7	0
	Uasin Gishu	1	90	9	1
Student level	Beginner	1	86	12	1
	Finalist		88	10	
Student SES	Bottom 25%		94	6	0
	Middle 50%	1	88	11	0
	Top 25%	2	77	18	3

3.3   Students' family background

Proportions of students whose parents were alive as well as those who were living with parents as at the time of study are displayed in Figure 3.8 and Figure 3.9, respectively. Information on parental education and student family socio-economic background are shown in Figure 3.10 and Figure 3.11, respectively. These variables are important for the study as parental support is an important factor in academic success.

Living parents: Results reveal that less than three-quarters (72.5%) of the students in this study had both parents alive. About one-quarter had lost one or both parents, or did not know whether their parents were

alive. The percentages of both parents alive were lowest in Kisumu (53.1%) and Turkana (53.9%) meaning that nearly half of the students attending TVET institutions in these two counties were living without support from one or both of their parents, though they could have been under the care of guardians.

Living with parents: As displayed in Figure 3.9 slightly less than half of the students were living with both of their parents (47.2%), 28.9% were not living with any of their parents, while the rest (23.9%) were living with one of their parents. The number of students living with both parents was lowest in Kisumu (31.2%) and Turkana (31.5%) – which was not surprising given that these two counties had the lowest levels of both parents alive.

Figure 3.8:   Proportion of students who had two living parents
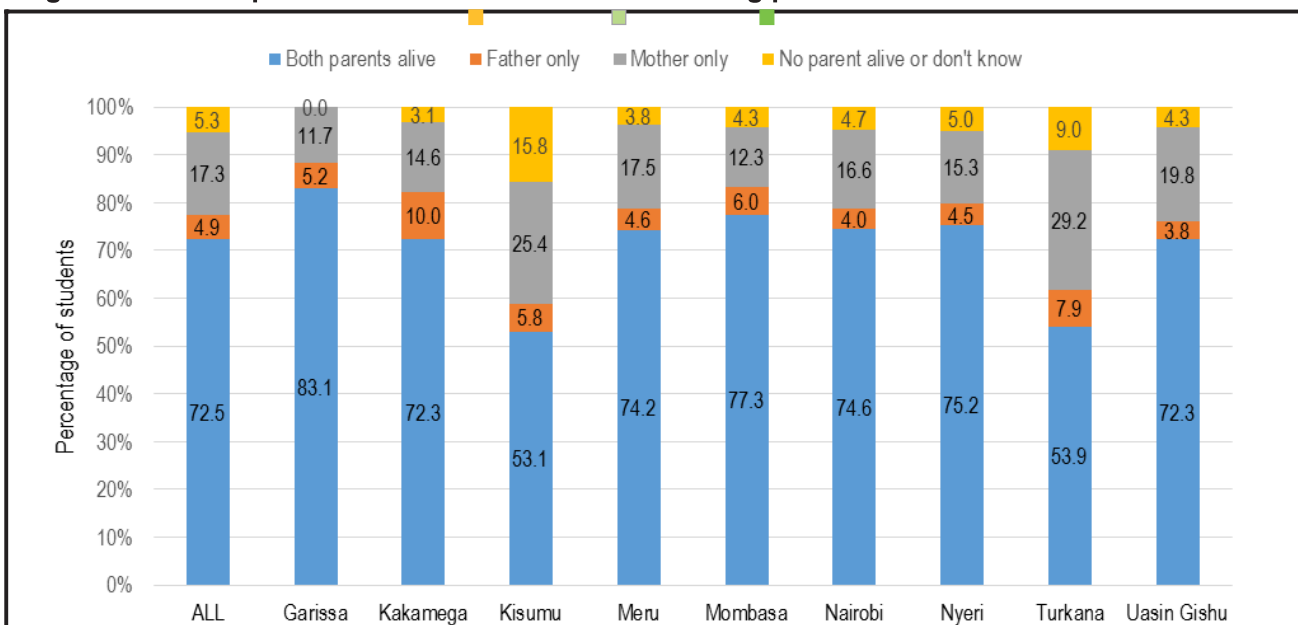
Figure 3.9:   Half of the students live with one or both parents
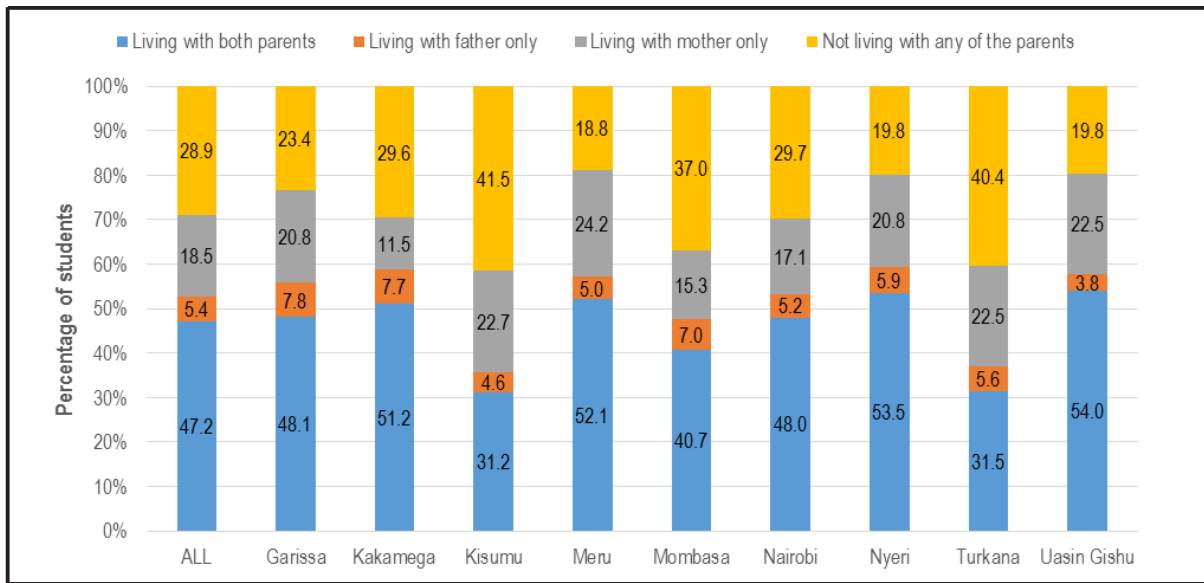
Parental education: Overall, nearly one-fifth (18.9%) of the mothers (or female guardians) of the students in this study had no formal education or had never completed primary education, while about one-quarter (25.3%) of the students had mothers or female guardians whose highest level of education was primary school. On the other hand, about one in ten (11.9%) of the fathers (or male guardians) either had no formal education or had not completed their primary school. Levels of no education or non-completion of primary school among mothers were highest in Garissa (90.9%) and Turkana (67.4%) – which are both arid counties. Likewise, the overall number of parents (or guardians) without at least a primary education was highest among these two counties – Garissa (71.4%) and Turkana (47.2%). The same two counties had the highest proportions of fathers who had no formal or primary level of education with proportions of 71.4% and 47.2% respectively. In general, levels of education were noticeably higher among fathers than among mothers.

Figure 3.10:   Highest level of academic education completed by parents

b) Father or Male Guardian

Legend: None/Never completed primary education; Completed primary educ.; Completed secondary educ.; Completed tertiary educ.; Don't know/No father

	ALL	Garissa	Kakamega	Kisumu	Meru	Mombasa	Nairobi	Nyeri	Turkana
Don't know/No father	25.3	5.2	17.7	40.8	30.0	23.7	24.6	32.7	14.6
Tertiary	27.2	9.1	11.9	23.5	12.1	31.0	35.7	23.3	13.5
Secondary	20.8	7.8	28.5	16.5	19.2	18.0	21.9	22.8	14.6
Primary	14.8	6.5	27.7	15.8	22.5	12.3	11.8	13.4	10.1
None	11.9	71.4	14.2	3.5	16.3	15.0	6.1	7.9	47.2

Family socio-economic background: The student SES index was computed from the sum of possession of the following 14 household items: television, working smart phone, computer, post office box, tablet, video player (DVD or VCD), radio or music system, fridge or refrigerator, car, piped water, electricity, washing machine, farm machinery, and flush toilet (see also Appendix 2.1 for the scaling properties of these items). The reliability statistics (Cronbach's alpha) of this SES index was 0.831, which is well within the accepted range of 0.70 to 1.00, with higher values being associated with more reliable scales.

The computation of the SES index used in this study did not involve possession of items such as basic phone, bicycle, motorcycle, poultry (such as chicken, turkeys and ducks), and small livestock (such as sheep, goats, and pigs) and large livestock (such as cattle, camels, and donkeys). Possession of these items tended to be poorly (and for some, negatively) correlated with the 14 household items

mentioned earlier – meaning that they could not be included in the same scale.

As shown in Figure 3.11, students came from households with an average possession of 6.3 items of the 14 household items. Possession of these items was higher among students attending private TVET institutions (6.9) than among those attending public institutions (4.7), implying that the private institutions tended to attract students from more affluent family backgrounds. Likewise, the average possession of these items was higher among students in TTIs (6.9) than among students in VTCs (4.3). This is likely because the former institutions were mostly located in major urban centers (especially Nairobi) while the latter institutions were mostly located in rural or peri-urban areas. In terms of counties, the possession of these items was highest among students in Nairobi (7.7), which was somewhat expected given the urban nature of Nairobi, and it was lowest in Kakamega (3.4).

Figure 3.11:   Students' socio-economic status

Y-axis: Mean number of HH items owned/co -owned by student(max=14)

Category	Value
All	6.3
Male	6
Female	6.5
Private	6.9
Public	4.7
NP	5.8
TTI	6.9
VTC	4.3
Garissa	5.6
Kakamega	3.4
Kisumu	4.4
Meru	4.3
Mombasa	6.8
Nairobi	7.7
Nyeri	6.7
Turkana	3.9
Uasin Gishu	5.1
Beginner	6.3
Finalist	6.3

Groupings: All | Student sex | TVET category | TVET Type | County | Student level
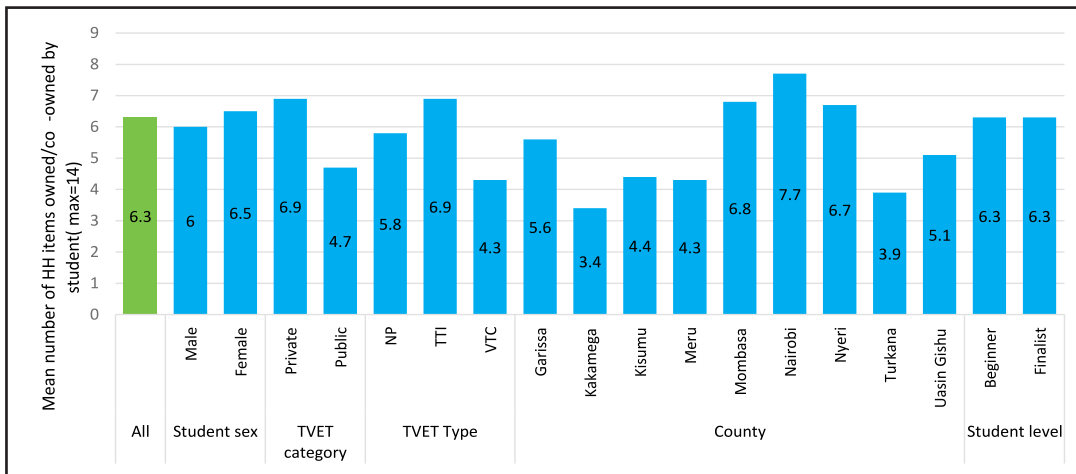
3.4   Students' current training courses and involvement in social activities

This section covers students' current training courses of study, their levels of satisfaction with the courses and with their instructors' expertise. This section also covers students' involvement in social activities such as community service, charity walks and debating events.

Students' current training courses: The type (public/private), category (NP, TTIs, VTCs) and location of institution influenced the nature of courses offered. Therefore, in our sample, the proportion of students taking various courses is partly a function of the TVET type, category and location. Results in Figure 3.12 reveal that, on average, about two in every five students were enrolled in certificate courses (42.5%) while about the same proportion of students were enrolled in diploma courses (41.3%). The results further reveal that a relatively small proportion (15.1%) of the students were enrolled in artisan courses. A negligible proportion of these students were enrolled in short courses without certification (1.1%). The proportions of those enrolled in artisan courses was larger in public institutions (31.3%) than in private ones (9.0%) as well as larger in institutions located in counties with a higher proportion of VTCs such as Kakamega (56.9%), Kisumu (46.5%) and Meru (41.3%).

Likewise, enrollment levels in artisan courses were much higher in VTCs (44.6%) than in other categories of TVET institutions – but this was not surprising because VTCs in Kenya mainly offer artisan level courses. Notably, enrollment levels in artisan courses tended to decrease with greater household wealth levels, while the opposite was true for enrollment levels in diploma courses. This implies that students from economically disadvantaged households tended to enroll in lower level courses when compared to their counterparts from affluent households. Lower level TVET courses often attract low entry qualifications and lower fees than higher level courses, consequently the lower level courses are more affordable to students from disadvantaged households. As noted in Section 3.2, students from affluent households were more likely to have completed higher levels of education than their counterparts from disadvantaged households, meaning that more students from affluent households would qualify for enrollment in high level courses.

Level of satisfaction with training courses and instructors: The percentage of students who reported being 'very satisfied' with their current training courses as well as their instructors' levels of expertise in these courses are displayed in Figure 3.13. On average, about two in every five students (39.9%) reported being 'very satisfied' with both their courses and their instructors' levels of expertise.

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[15] Information obtained from the Kenya National Qualifications Authority (KNQA), whose URL is http://www.knqa.go.ke/the-knqf-structure/

There was not much difference by gender, institution type (public or private), or course year split in the levels of satisfaction with both courses and instructors' expertise. However, in terms of institution category, there were more 'very satisfied' students in VTCs (46.5%) than in NPs (34.4%) and TTIs (38.3%). This perhaps could be the result of VTCs enrolling students who received lower grades and who therefore have lower expectations than students in TTIs and NPs. Majority of courses offered in VTCs take shorter periods to complete compared to those offered in TTIs and NPs. It is also possible that VTCs are better placed to meet the needs of their students than is the case with the other categories of institutions.

In terms of counties, satisfaction levels were strikingly low among students in Turkana (24.7%) county in comparison to the other counties. The levels of satisfaction with both the courses and instructors' expertise tended to decrease by course level – with students enrolled in short (52.6%) and artisan (51.4%) courses reporting higher levels of satisfaction than those enrolled in certificate (40.7%) and diploma (34.7%) courses. As highlighted above, the expectations by those who undertake short and artisan courses could be lower compared to those undertaking certificate and diploma courses, and this could be influencing their level of satisfaction.

Figure 3.12: Students' current courses of study

Legend: Short course, Artisan, Certificate, Diploma

Categories (All / Student's Sex / TVET Type / TVET category / County / Student's SES):
all, Male, Female, Private, Public, NP, TTI, VTC, Garissa, Kisumu, Meru, Mombasa, Nairobi, Nyeri, Turkana, UasinGishu, Kakamega, Beginner, Finalist, Bottom 25%, Middle 50%, Top 25%
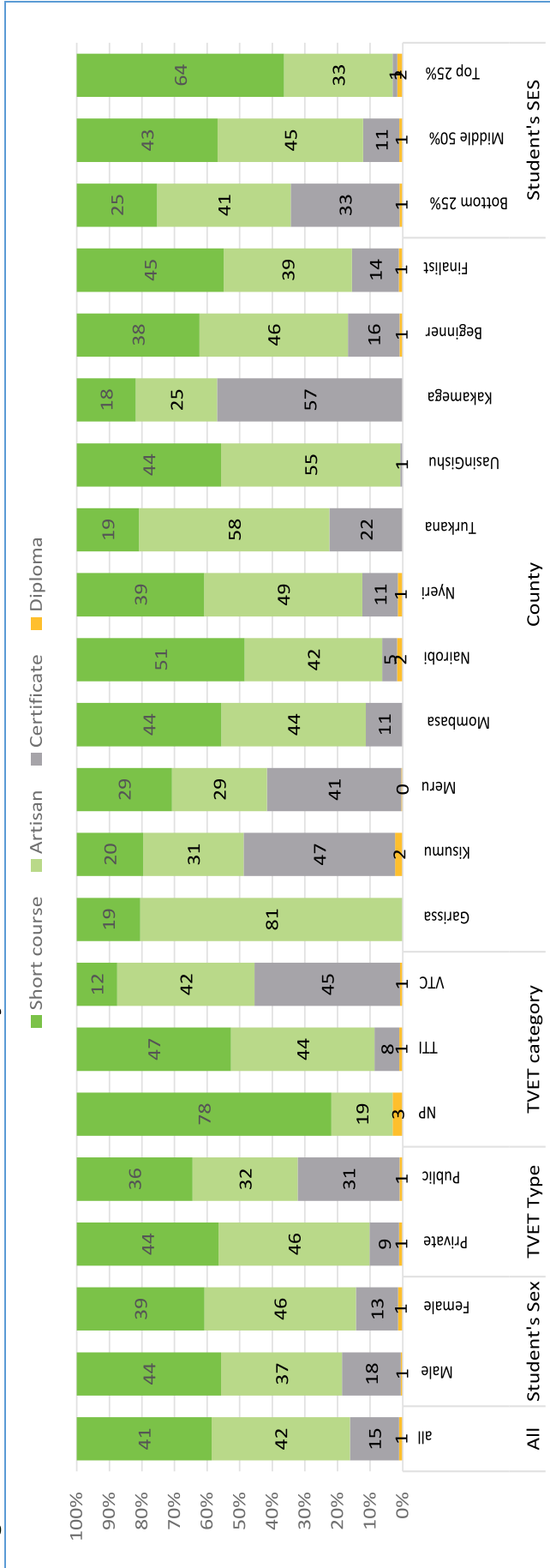
Figure 3.13: Students' level of satisfaction with the training course and instructors

Legend: Very satisfied with both course and instructors, Very satisfied with the course only, Very satisfied with the instructor only, Very satisfied with either, Not very satisfied with either

Categories (All / Student's Sex / TVET Type / TVET category / County / Student's current course):
all, Male, Female, Private, Public, NP, TTI, VTC, Garissa, Kakamega, Kisumu, Meru, Mombasa, Nairobi, Nyeri, Turkana, UasinGishu, Beginner, Finalist, Short course, Artisan, Certificate, Diploma+

Percentage of students

Students' involvement in social activities: The social activity involvement index used in this report was computed from the total involvement of students in 13 social activities offered at their institutions (such as community service, charity walks and debating events). Students were asked to rate their involvement on a 'sometimes, most of the time, or all of the time' scale. The reliability statistics (Cronbach's alpha) of this social involvement index was 0.829, and thus, acceptable. A list of the activities involved in the computation of this index can be found in Appendix 2.2 together with their scaling properties. Involvement in social activities is thought to be important in nurturing soft skills and this could be done through reduction of rigidity and complexity of the curriculum to provide space for activities promoting soft skills

(Ignatowski, 2017).

As shown in **Figure 3.14**, male students (4.6) reported being involved in more of these social activities than female students (3.9). Likewise, students from Meru (6.0) and Uasin Gishu (5.6) reported more involvement in activities than those from the other counties, especially those from Turkana (3.0) and Garissa (3.1). Involvement in these activities was strikingly low among students enrolled in short courses, but this is understandable since such students are in the institutions for short durations. Students from economically disadvantaged households tended to be involved in more of these activities when compared to those from affluent households **(Figure 3.14).**

Figure 3.14:   Students' involvement in social activities

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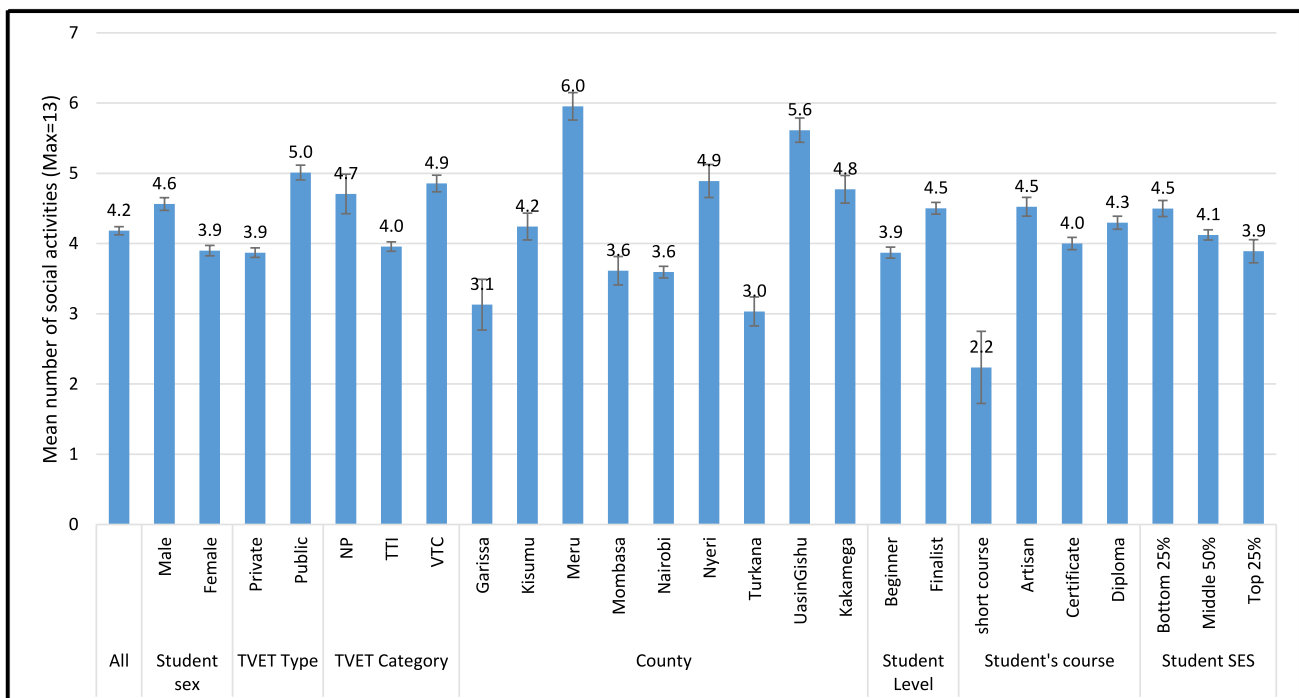
[16] The 13 social activities evaluated are; Physical fitness training, Charity walks, Blood donation drives/campaigns, Volunteer/community service, National youth days, Courtesy visits to hospitals, children's homes or orphanages, Orientation of new students, Debating events, Music events Sporting events (i.e. ball games), Institutional clubs and societies, Athletics Drama events

3.5 Students' perceptions regarding WYD skills, career opportunities and support from the institutions

This section focuses on student perceptions on what youth need to do to be more competitive in the local job market, and their perceptions regarding the progress made in selected skill areas since they first joined their current TVET institutions. The section also covers student perceptions regarding the importance of selected skills or knowledge areas in their future careers, their perceptions regarding TVET institutional support and capacity, as well as perceptions of their training courses and instructors in nurturing selected skills and knowledge areas.

What the youth need to do to be more competitive in the local job market: Students were presented with a list of possible things that young people could do to be more competitive in the local job market, and asked to identify which in their opinion they thought were applicable (results in **Figure 3.15**). The items (possible things) were not specific to the institutional environment and could be obtained from other environments.

The top item identified was the acquisition of technical training (56.7%) which when disaggregated by TVET categories ranged from 50.8% (VTC) to 67.5% (NPs). The second and third-ranked items were acquisition of formal education (35.2%) and acquisition of vocational training (28.0%) respectively. Students did not perceive that reliance on relatives or knowing people in authority would be a factor in increasing one's chances of securing employment. The view about obtaining technical training could be perceived by students as being more lucrative since it may promote higher chances of obtaining formal employment. It may also be the case that those taking vocational training courses perceived the training they were receiving as acquisition of technical skills, and hence they may have responded positively to 'technical training' response as shown in **Figure 3.15.**

Figure 3.15:   Students' opinions about local job market for youths
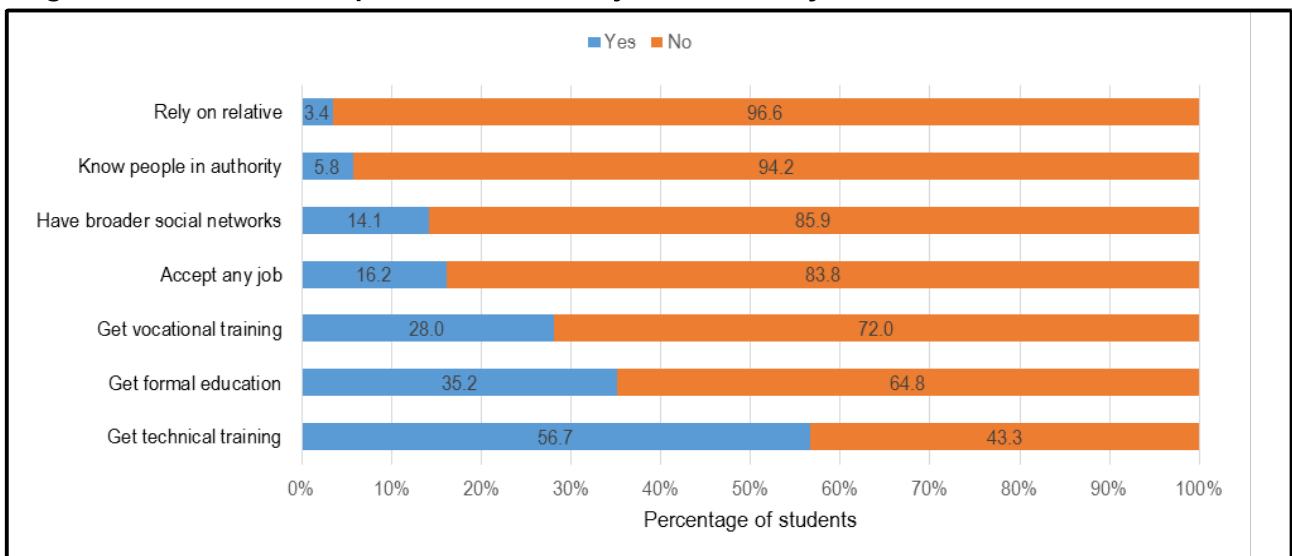
Progress made in selected WYD skill or knowledge areas since joining TVET: The students were presented with 18 statements concerning their progress in skills or knowledge areas since joining their TVET institutions and asked to give their level of agreement with each statement. For this report, if the student said that they 'agree' or 'strongly agree' with the statement, they were deemed to have made progress in that skill or knowledge area – and thus their data were grouped together 'as progress' in the analysis. This also means that those who said that they 'strongly disagree', 'disagree' or 'neither agree or disagree' were deemed to have not made any progress in that skill or knowledge area.

The difference in percentages of first and final year students agreeing or strongly agreeing with each of the 18 statements is depicted in **Figure 3.16**. The courses offered in TVET institutions are of various durations: Grade Test II has a minimum of 300 hours; Grade Test I has a minimum of 300 hours (cumulatively 600 hours for artisan courses, mainly in VTCs); professional certificate takes 600 hours; while the national diploma takes 2,400 hours. This translates to 1 year for artisan courses, 2 years

for certificate courses and 3 years for the national diploma (these durations are approximate since they depend on the examining bodies). For students taking certificate (43%) and diploma (41%) courses, final year students were two years ahead of the first year students. Those taking artisan and short courses were about 16%. The final year students were more likely to agree or strongly agree with the statements than the first-year students. The differences (or gains) between these two-year groups imply an impact by the TVET institutions in these skills or knowledge areas.

The largest gains were recorded in the areas of involvement in leadership roles in the classroom (7.3) followed by improvement in mathematics skills (6.0). The lowest gains were recorded in the areas of enjoying working collaboratively with others (1.4) and improved relationships with others (1.7). Overall, these are very low gains and perhaps a reflection of inadequate integration of soft skills in TVET institutions' curricula. In fact, qualitative data on the soft skills integration in TVET programs show that they are inadequate in preparing youth for the labor market.

Figure 3.16:   Students' changes in skills since joining TVET – Final versus first year

TVET REPORT
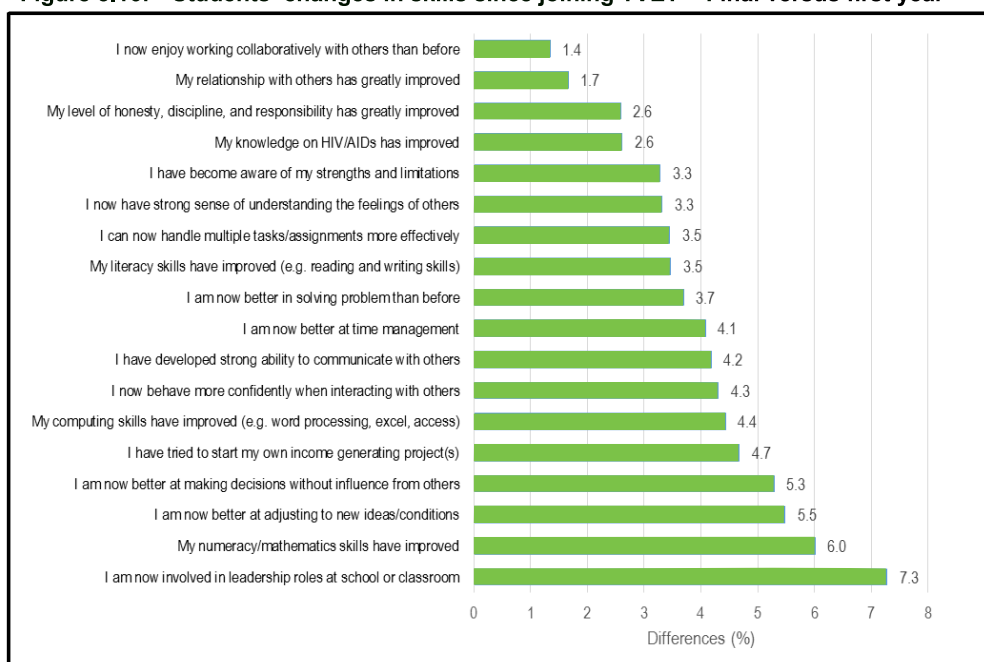
There were differences between males and females on skills acquired since joining TVET institutions as shown in **Figure 3.17.** Students' perceptions about changes in their skills was better among males than females in 16 out of the 18 statements evaluated. The main differences were observed in: ability to adjust to new ideas/conditions (6%); ability to start an income generating activity (5.4%); teamwork (4.8%); problem solving skills (4.6%); and, time management (4.4%). The two skills where perceptions among females were better than males were awareness of strengths and weaknesses (1%), and knowledge about HIV/AIDs (0.6%).

Figure 3 17: Gender differences in skills since joining TVET

Legend: Female, Male

Statement	Female	Male
My level of honesty, discipline, and responsibility has greatly improved	61.1%	63.2%
I am now better at making decisions without influence from others	60.1%	62.9%
My relationship with others has greatly improved	58.8%	62.7%
I now enjoy working collaboratively with others than before	57.5%	62.3%
I am now better at adjusting to new ideas/conditions	55.9%	61.9%
My literacy skills have improved (eg reading and writing skills)	58.3%	59.8%
I am now better in solving problem than before	54.8%	59.4%
I am now better at time management	54.5%	58.9%
I have become aware of my strengths and limitations	59.1%	58.1%
I now have strong sense of understanding the feelings of others	55.3%	57.1%
I can now can handle multiple tasks/assignments more effectively	53.2%	57.1%
My computing skills have improved (eg word processing, excel, access)	50.1%	52.5%
My numeracy/mathematics skills have improved	46.4%	50.0%
My knowledge on HIV/AIDs has improved	48.9%	48.3%
I am now involved in leadership roles at school or classroom	35.6%	39.0%
I have tried to start my own income generating project(s)	31.4%	36.8%

Importance of WYD skills or knowledge areas in students' future careers: Students were presented with statements concerning four general groups of skills or knowledge areas and asked to rate the importance of the statement in their future careers. The four general groups of "skills or knowledge areas" (to be referred jointly as "areas") covered in these statements were namely academic and technical skills (8 statements/items), life skills (8), core values (5), and social-emotional skills (5).

For students who rated a statement as 'important' or 'very important', their data were put under the same category – and coded as '1', while for students who rated a statement as 'neither important or unimportant', 'unimportant' or 'very unimportant', their data were put under the alternative category – and coded as '0'. Student scores on the items in each general group were added-up to compute four separate total scores – one for each of the mentioned areas. Each of these total scores was then converted to a percentage as reported in this section.

The list of items in each of the four general groups can be found in Appendix 2.3 together with their scaling properties.

The proportion of students rating each of the four areas as important or very important are presented in **Figure 3.18.** In the graph, different colored markers have been used in the key/legend to distinguish the proportions of students under each of the four skill areas. For instance, under the student's sex, the yellow marker denotes proportion of students under the social-emotional skills, the blue marker represents the proportions of students on academic and technical skills, the orange marker represents the proportion of students in life skills, while the grey marker is the proportion under core values. The line joining the markers is simply to improve the visualization of the markers.

Figure 3.18:   Students' perceptions on selected skills and their future careers
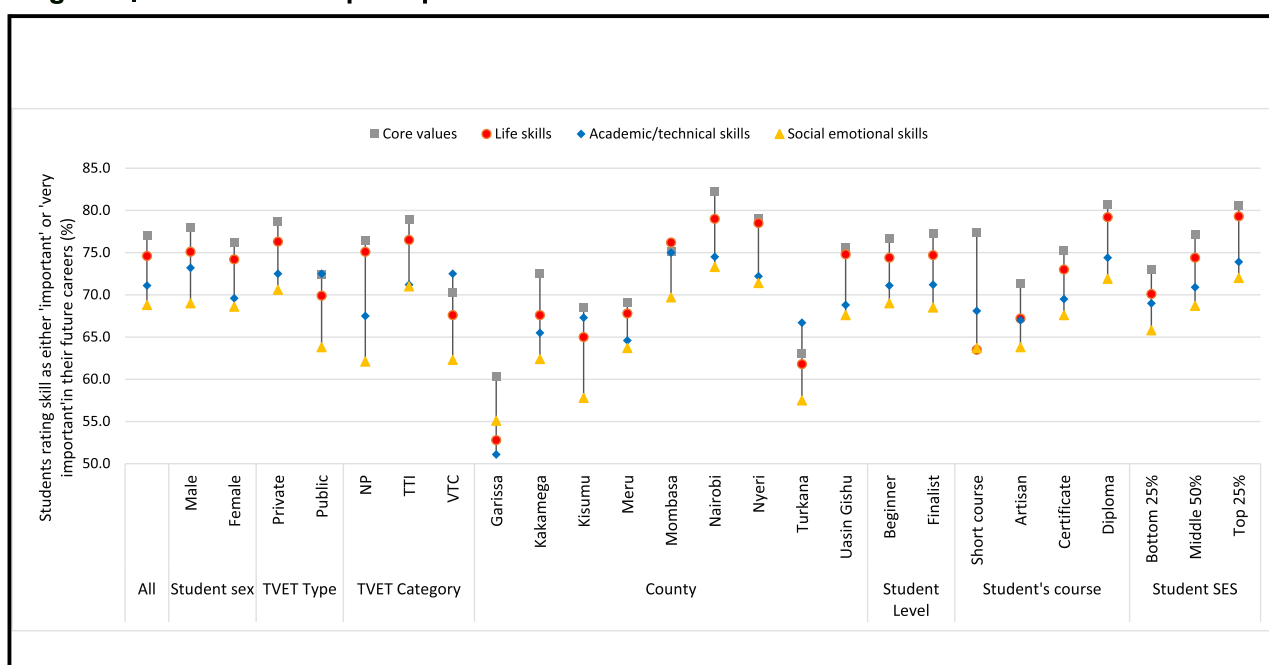
The percentages of students rating each of the four areas as important or very important are presented in Figure 3.17. On average, over two-thirds of the interviewed students considered all the four areas to be important or very important. The highest rated area was core values (77.0%), followed by life skills (74.6%), academic and technical skills (71.1%), and finally social-emotional skills (68.8%). There was not much difference by sex split – though female students tended to rate academic and technical skills (69.6%) slightly lower than male students (73.2%). Likewise, the rating of these areas did not differ much by year of study. In addition, students attending private institutions generally rated all the four areas slightly higher than their counterparts attending public institutions.

When the data were considered by county, the rating of the four areas was generally higher among students in Nairobi and lower among students in Garissa and Turkana (both arid counties) where the majority of parents' highest academic qualification is primary education. The levels of rating of the four areas seemed to positively correlate with the level of the student course and the household SES.

Perceptions about support from TVET institutions: Students were presented with 10 statements concerning their experiences in TVET institutions and asked to give their level of agreement with each statement. If the students said that they 'agree' or 'strongly agree' with the statement, they were considered to have experienced what was covered in the statement, and if they said that they 'strongly disagree', 'disagree' or 'neither agree or disagree' they were considered to have not experienced the contents of the statement.

The results are presented in Figure 3.19 and show that nearly two-thirds of the students were very proud of the knowledge and skills they had gained in TVET institutions (66.9%) and they believed it would be easy to get jobs with the skills gained (65%). About one-half indicated that TVET training equipment was up-to-date (47.0%), which should be troubling to the TVET heads because it implies that the other half (53.0%) of the students believed that the equipment are outdated. This is congruent with the results depicted in Figure 4.8 under instructors where majority cited inadequate facilities as a major challenge.

Moreover, only about one-third of the students indicated that the training equipment, materials and machinery were adequate (34.8%), which is a downside because it means that a vast majority of the students believed otherwise (65.2%). Also on the lower end of the results were technical workshops and laboratories which only 38.1% of the student believed to be sufficient - as depicted in **Figure 4.8.**
In terms of activities that are perceived or

known to nurture soft skills (Ignatowski, 2017), it was surprising to note that only about half of the students interviewed indicated that their institutions had field attachment or internship programs for students (50.3%). Private institutions had a slightly higher proportion (50.9%) compared to public institutions (48.8%).

TVET institutions also provide students with opportunity to debate or present their ideas or projects to other students (40.9%) – thus encouraging critical thinking, and nurturing communication skills. Less than two-fifths of interviewed students agreed that there was support in terms of learning equipment availability (34.8%), bursaries/scholarships (37.2%) as well as workshops/laboratories (38.1%). Student scores on the 10 statements regarding their experiences in TVET institutions (listed in), were summed up to create a "TVET support" index. This index was used to compare TVET support across various groups of students as shown in **Figure 3.20**.

The perceptions of TVET support did not vary much by student sex, TVET type (private versus public), or TVET category. TVET support was perceived to be lowest in Kisumu (3.1) and Turkana (3.2) counties, and highest in Nyeri (5.3) county. Moreover, in general, students enrolled in lower level courses (e.g. artisan) tended to perceive TVET support as low compared to their counterparts enrolled in higher level courses (e.g. diploma). Likewise, students from lower SES household categories, tended to perceive TVET support as low compared to those from higher categories.

Figure 3.19: Students' perceptions about support from TVET institutions
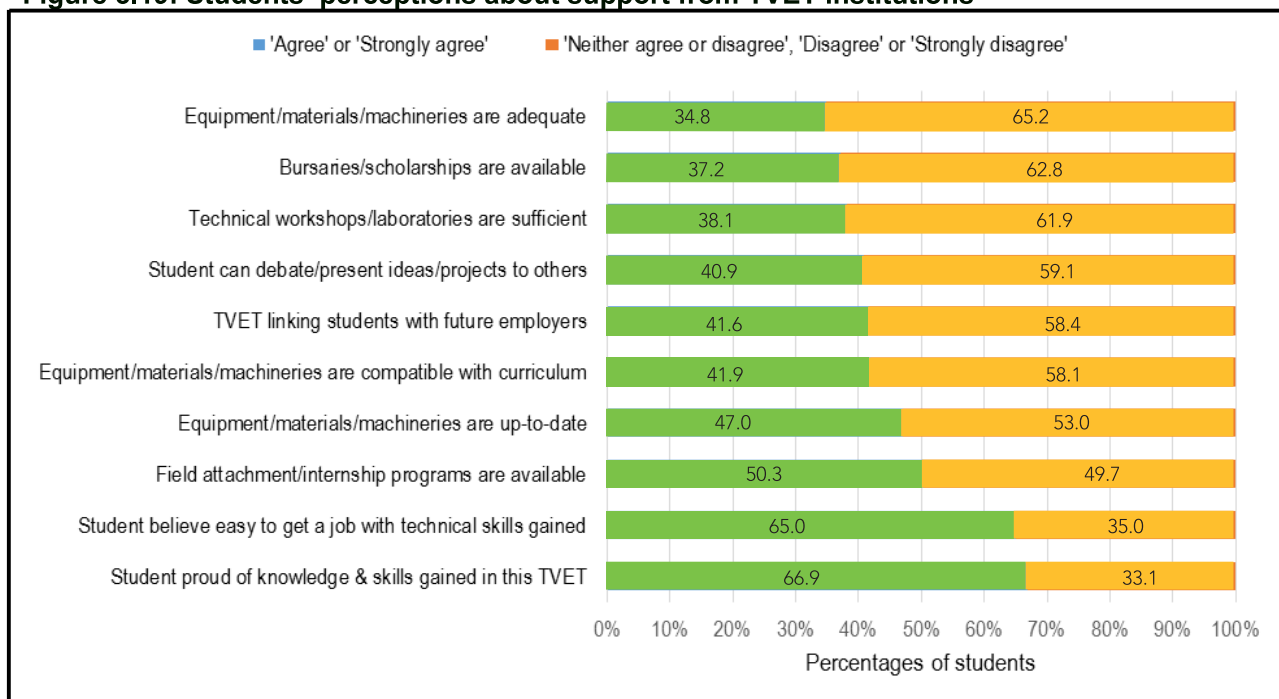
Figure 3.20: TVET institutional support index
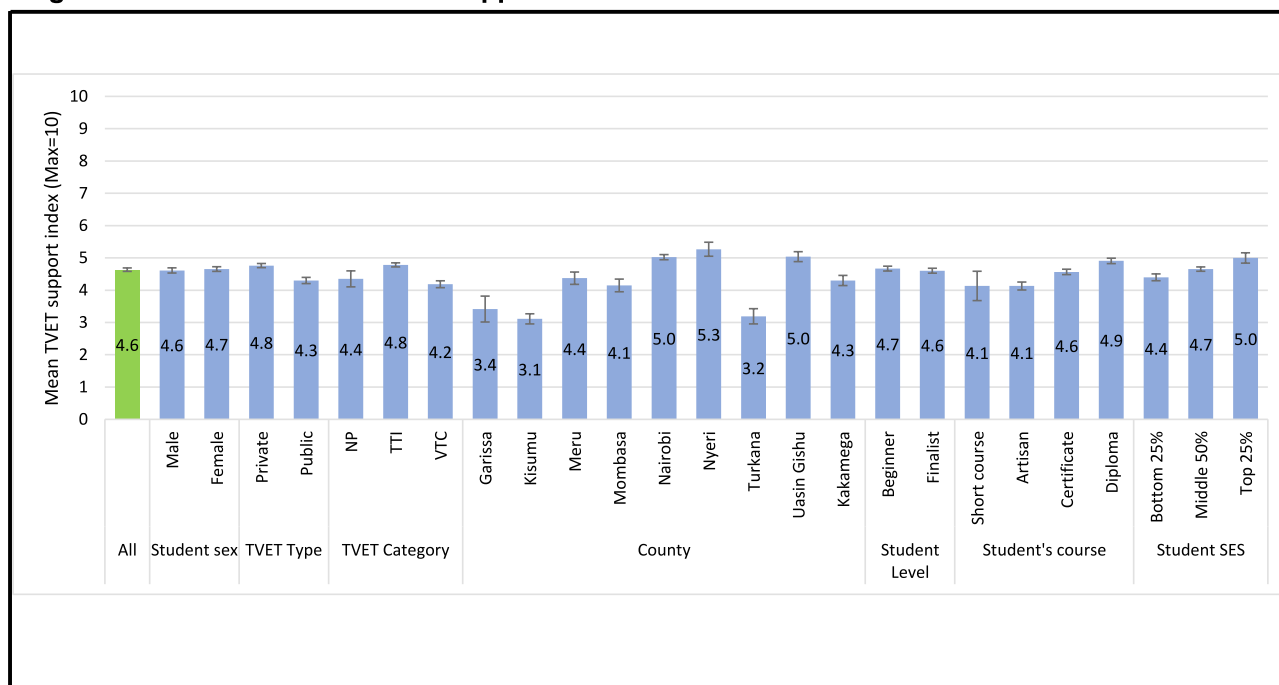
Perceptions about support from instructors and training courses: In addition to what is described in the previous subsection about support from TVET institutions, the students were also asked to give their levels of agreement with 13 statements concerning their experiences with instructors and training programs. Their responses to the 13 statements were analyzed following the same procedure described in the previous subsection, including the computation of an index (to be called "instructor-courses support" index) to compare instructors and training courses (or programs) support across various groups of students.

About two-thirds of the students believed that their training courses matched opportunities in the job market (65.8%) and opportunities for self-employment (65.3%) as shown in Figure 3.21. It would be important to compare this with the perceptions of potential employers.

In terms of incorporating activities for nurturing soft skills in the training courses, only about one-third indicated that they are required to complete community service as part of their training (31.8%), and that their training courses included non-technical skills to prepare them for the job market (35.5%). Nevertheless, well over one-half (57.3%) of the students interviewed indicated that their training courses have special topics in ethics and behavior. Based on these student perceptions, there is still a lot of room for improvement in instructor activities aimed at nurturing soft skills or higher-order thinking skills such as creative thinking and problem solving.

2As shown in Figure 3.22, the perceptions of instructor-courses support did not vary much by student sex or by student level of study. However, this support was perceived to be higher in private institutions (6.6) than in public ones (5.9); and much lower in Turkana (4.2) and Kisumu (4.5) – the same two counties where TVET support was perceived to be lowest by students. Similar to the TVET support results, the perception on instructor-courses support generally tended to increase with the level of the training course and student household SES.

Figure 3.21:   Students' perceptions about support from instructors and training courses

Legend: ■ 'Agree' or 'Strongly agree'   ■ 'Neither agree or disagree', 'Disagree' or 'Strongly disagree'

Statement	Agree/Strongly agree	Neither/Disagree/Strongly disagree
Required to complete community service as part of training	31.8	68.2
Training course includes non-technical skills to prepare me for job market	35.5	64.5
Instructors use modern teaching aids/materials like YouTube	35.8	64.2
Instructors emphasise the importance of non-academic & non-technical	44.8	55.2
Instructors provides opportunities to critique other students' work	48.2	51.8
Training course includes non-academic skills for solving every day problems	49.7	50.3
Instructors give problems which can be solved using multiple methods	50.8	49.2
Instructors encourages originality in solving problems	51.4	48.6
Instructors familiar with scientific/practical knowledge in their area	55.3	44.7
Training course curriculum has special topics in ethics/behavior	57.3	42.7
Instructors encourage creativity	60.2	39.8
Training course matches with the opportunities for self-employment	65.3	34.7
Training course matches with the opportunities in the job market	65.8	34.2

Percentages of students

Figure 3.22:   Instructor-courses support index

Mean instructor-course support index (max=13)

Category	Group	Value
All	All	6.5
Student sex	Male	6.5
Student sex	Female	6.6
TVET Type	Private	6.8
TVET Type	Public	5.9
TVET Category	NP	5.9
TVET Category	TTI	6.8
TVET Category	VTC	5.8
County	Garissa	5.3
County	Kisumu	4.5
County	Meru	5.9
County	Mombasa	6.4
County	Nairobi	7.2
County	Nyeri	6.9
County	Turkana	4.2
County	UasinGishu	6.7
County	Kakamega	5.7
Student Level	Beginner	6.5
Student Level	Finalist	6.6
Student's course	Short course	5.8
Student's course	Artisan	5.7
Student's course	Certificate	6.4
Student's course	Diploma	6.9
Student SES	Bottom 25%	6.2
Student SES	Middle 50%	6.5
Student SES	Top 25%	7.2

3.6 Students' performance on the WYD skills

This section focuses on the student performance in the WYD skills assessment. The results cover student scores on selected values and life skills; functional literacy, functional numeracy, and digital literacy. Comparisons are made across various groups of students split by key characteristics such as student gender, student household SES, student level of study, and institution category, type and geographical location.

3.6.1 Selected studies

In line with other parallel studies on values among youth, this study examined five values including trustworthiness, persistence, dependability, openness and loyalty. For each of these values, students were presented with a series of statements (see appendices) pertaining to that value and asked to give their level of agreement with each statement on a scale of 1 being 'strongly disagree' to 5 being 'strongly agree'. For this report, if students said that they 'agree' or 'strongly agree' with the statement, they were deemed to be 'strong' on that value - and such students were given a score of one (1) on that statement. Alternatively, if students said that they

'neither agree nor disagree', 'disagree' or 'strongly disagree' with the statement, they were deemed to be 'weak' in that value and were given a score of zero (0) on that statement. The scores in each statement were added to make up the total score on the respective value, which was then converted to the mean percentages reported in this section. The percentages reported here are the means on each WYD value across the student sample and are presented in Table 6.1.

Average student scores were highest for dependability (89.9%), followed by loyalty (89.2%) openness (82.9%) and persistence (75.6%). The scores were lowest on trustworthiness (46.1%). These mean scores can also be interpreted as the percentage of students agreeing or strongly agreeing with the statements pertaining to those values – thus considered to be 'strong' on those values. Apart from the area of trustworthiness where only about half of the students were considered to be strong, at least three-quarters of the students were considered to be strong in the other four areas considered. The results were generally consistent regardless of the sub-group of students considered and did not vary much by student level of study (first or final year) implying that the TVET institutions might not have much impact on student WYD values.

*Table 3.1: **Mean scores of students on selected values***

Characteristic	Group	Cases	Trustworthy	Persistence	Value Dependability	Openness	Loyalty
Student Sex	Male	1,474	49.5	75.9	90.9	83.9	89.5
	Female	1,978	43.6	75.5	89.1	82.2	89.0
TVET Category	Private	2,509	45.0	75.5	89.5	83.3	89.7
	Public	943	49.1	76.1	90.9	82.0	87.9
TVET Type	NP	160	44.6	75.4	91.5	84.1	91.9
	TTI	2,559	44.9	75.9	89.7	83.8	90.1
	VTC	733	50.7	74.7	90.3	79.7	85.6
County	Garissa	77	49.4	70.1	81.8	86.6	80.1
	Kakamega	260	52.7	76.8	89.5	79.1	83.7
	Kisumu	260	43.8	73.8	88.5	82.6	86.3
	Meru	240	53.2	75.4	94.4	84.7	88.2
	Mombasa	300	44.7	76.1	90.7	78.9	91.2
	Nairobi	1624	44.5	74.0	89.6	84.5	91.3
	Nyeri	202	43.7	77.9	89.3	81.8	88.6
	Turkana	89	53.2	81.6	87.6	69.3	86.5
	U. Gishu	400	45.6	81.1	91.1	84.2	88.0
Student Level of Study	Beginner	1,754	46.3	75.2	89.9	82.9	89.3
	Finalist	1,698	45.9	76.0	89.9	83.0	89.2
Student Current Course	Short course	38	43.9	76.3	86.8	83.3	91.2
	Artisan	500	51.8	74.9	89.0	78.4	85.0
	Certificate	1,500	46.3	76.0	89.8	83.2	88.7
	Diploma+	1,414	44.0	75.5	90.4	84.2	91.3
Student SES	Bottom 25%	865	49.3	76.7	90.4	82.2	86.4
	Middle 50%	1,733	46.7	75.8	90.0	83.2	89.8
	Top 25%	854	41.7	74.2	89.2	83.0	91.0
ALL Students		3,452	46.1	75.6	89.9	82.9	89.2

3.6.2 Selected life skills and social-emotional skills

In the context of this study, life skills are coping abilities and positive behaviors that enable a person to deal effectively with the challenges and demands of life. This is important in understanding WYD, as evidenced in past work in this area which argue that youth development can be enhanced through one's social support, competence, and subjective well-being (Meyers, 2003). In view of this, we selected six life skills that speak to social support and subjective well-being, namely, intrapersonal, interpersonal, decision making, leadership, resourcefulness, and professionalism.

Intrapersonal skills: Students were asked to rate their levels of confidence with respect to a series of statements assessing intrapersonal skills (covering self-esteem, self-awareness, and coping with emotions and stress). If students said they were 'confident' or 'very confident' with the statement, they were deemed to be 'strong' in intrapersonal skills, and the opposite was the case for those students who said they were 'fairly confident', 'not confident' or 'extremely not confident'.

Interpersonal skills and decision making: The assessment of these two skills involved students rating their levels of agreement with a series of statements concerning interpersonal skills (covering resistance to peer-pressure, assertiveness, empathy, negotiation, effective communication, and interpersonal relations), and decision making (covering curiosity, problem-solving, critical thinking, and creative thinking).

Students were considered to be 'strong' on the skill being assessed if they 'agreed' or 'strongly agreed' with the statements, and 'weak' on that skill if they were 'neutral', 'disagreed' or 'strongly disagreed' with the statements.

Leadership and resourcefulness: The assessment of these two skills involved students rating how often they were involved in activities described in statements concerning leadership (i.e. taking responsibility for their own actions, treating everyone the same, and listening to differing ideas), and resourcefulness (i.e. taking initiative in finding solutions, coming up with new ideas to solve problems, and pushing towards the desired solution).

Students were deemed to be 'strong' in the skills being assessed if they said they were involved in the activities described in the statements 'often' or 'always', and they were considered to be 'weak' on those skills if they said otherwise (i.e. 'never', 'rarely' or 'sometimes').

The mean scores of students in the selected life skills and social-emotional skills are depicted in **Figure 3.23.** The interpretation of Figure 3.23 has a similar description as that in **Figure 3.20**. On average, student scores were highest in decision making skills (92.9%), followed by interpersonal skills (83.8%), leadership skills (80.7%) and interpersonal skills (75.4%), while they were lowest in resourcefulness (72.6%).

Figure 3.23: Students' mean scores on selected life skills and social-emotional skills
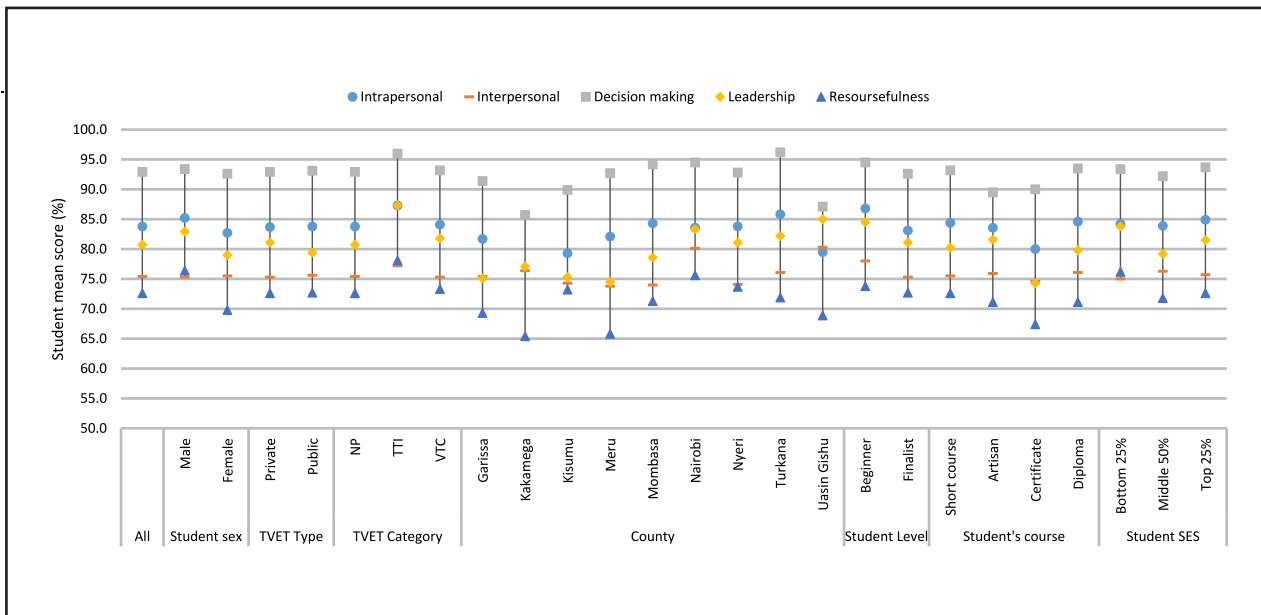
Though scores on the selected skills were generally consistent across student subgroups, the levels of these skills were generally lower among students in Kakamega County when compared to other counties. Kakamega students generally had the least resourcefulness skills – perhaps driven by the fact that nearly half (51.5%) of the students in this county had no secondary education (see **Figure 3.6** in Section 3.1), and majority of the institutions surveyed were VTCs. Resourcefulness can be acquired in school hence those students who have completed secondary education tend to have higher levels. Similar to the results for WYD skills, scores on the emotional and life skills did not differ by the year of study.

Efforts to improve the levels of these skills among TVET students should pay attention to the skills with relatively low scores such as resourcefulness and interpersonal skills.

Soft skills based on a case study

Apart from assessment of life skills and social-emotional skills based on the rating of statements as described above, students were also assessed on these skills based on a case study. Students were presented with a story involving everyday social interactions and asked how best they would handle issues in the story using problem solving and decision-making skills; coping with stress and emotions; peaceful conflict resolution; and interpersonal relationships and communication.

The percentage of students answering all the items in the case study correctly (i.e. correct response) are displayed in **Figure 3.24.** From the results displayed in this figure, it can be seen that three in every four (75%) of the students answered all the items in the case study correctly. There is a significant but weak positive correlation between the capabilities and values assessment, and the soft skills case study assessment (r=0.14, p-value <1.001).

Figure 3.24: Percentages of students answering all the items in a case study correctly
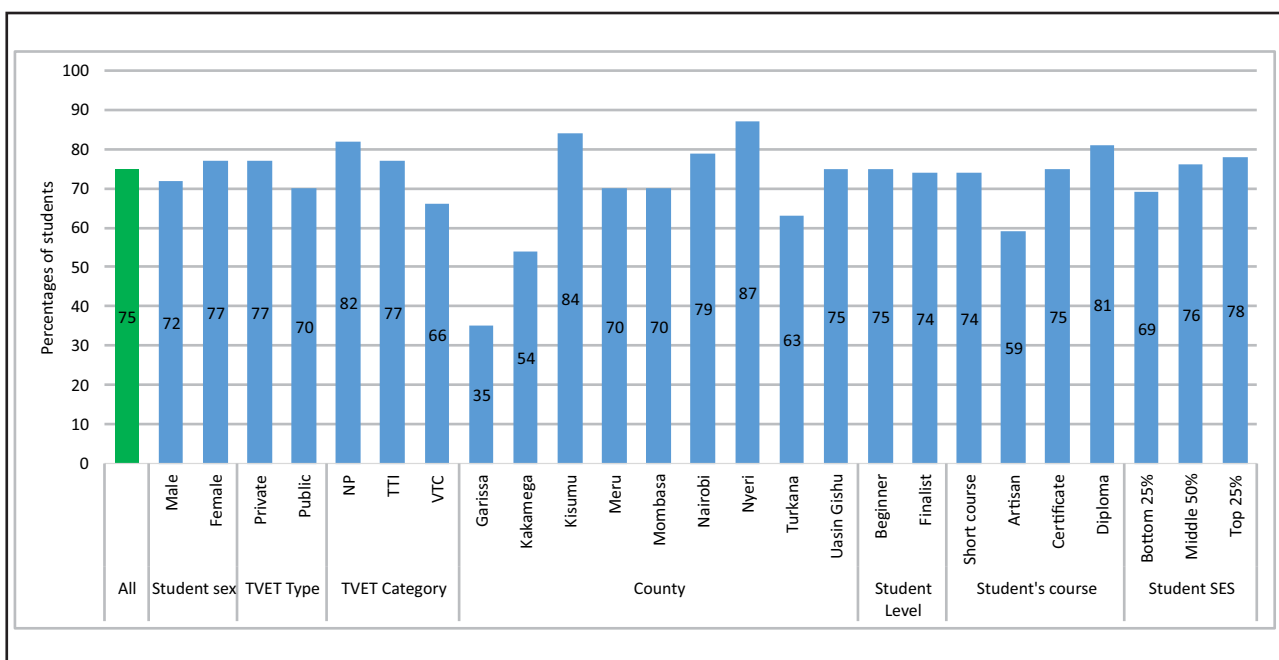
Based on scores in the case study, scores on life skills and social-emotional skills were slightly higher among female students (77%) than among male students (72%); higher among students attending private institutions (77%) than among those attending public ones (70%); and much higher in NPs (82%) than in TTIs (77%) or VTCs (66%). With respect to counties, performance on these skills was noticeably lower in Garissa (35%), followed by Kakamega (54%) and then Turkana (63%). Performances of first and final year students were 75% and 74% respectively, implying that the impact of TVETs on these skills was negligible.

Performance in these skills tended to increase with the level of student courses – with performance being lowest among students enrolled in artisan courses (59%), and higher among those enrolled in certificate (75%) and diploma courses (81%) – perhaps driven by the different entry education requirements into these courses. Likewise, performance in these skills tended to vary with student household SES levels – with students from the top SES quartile (78%) slightly outperforming those from the middle quartiles (76%), and greatly outperforming those from the bottom quartile (69%). This could perhaps be attributable to the fact that higher level programs required higher level qualifications, hence enrolled students of higher academic ability, which potentially resulted in improved performance. Similarly, students from households with higher SES are likely to have been more exposed to various life and social-emotional skills prior to and during their stay in TVET institutions hence their higher performance.

3.6.3 Functional literacy, functional numeracy and digital learning

This section covers student performance on the functional literacy, functional numeracy and digital literacy assessment tests and was informed by information obtained from parallel studies on literacy, numeracy and digital learning among youth. For functional literacy, students were presented with a simple table on a card showing activities given to a farm supervisor each day of the week, and asked questions testing their ability to acquire and use information from the table. For functional numeracy, students were presented with ingredients required to make 200 *mandazi* (a form of fried bread) and their prices, and asked questions testing their ability to apply simple mathematical operations based on the information presented. Finally, to assess levels of digital learning, students were asked to perform simple tasks using a mobile phone – such as sending a text message, buying airtime, and downloading media files. The assumption was that the students had access to mobile phones before the study and would have acquired basic knowledge on mobile phone functionality through self-learning.

The percentage of students answering all items in these tests correctly are depicted in Figure 3.25. Overall, student performance was highest in digital learning – with nearly four out of every five students (80.8%) correctly demonstrating how to perform all the tasks tested. On the downside, more than half of the students (54.5%) did not correctly answer all the functional literacy questions. Student performance was lowest in functional numeracy with only about one out of five (21.4%) answering all the items correctly. Performance in the functional numeracy skills was particularly low among students in Garissa County where none of the 77 students sampled in that county correctly answered all the items in the test.

[18] http://uis.unesco.org/sites/default/files/documents/gaml4-functional-literacy-numeracy.pdf

The test was at the appropriate level for a primary school leaver therefore this Garissa result was surprising given that those students had reported having completed at least secondary education (see in Section 3.1).

In terms of performance by subgroups, performance on the three skills was generally better among male students, those attending private institutions or those in NPs compared to their counterparts. In addition, students in Kakamega County scored lower, on average, on these skills when compared to their counterparts in other counties. Similar to the results on life skills and social-emotional skills (see Figure 3.25), performance in functional literacy, functional numeracy and digital learning skills also tended to increase with the complexity of the student training level (perhaps driven by the different levels of education required to enroll into these different courses) and also increased with higher student household SES. Moreover, for each of these three skills, performances of first and final years were about the same.

Figure 3.25: Percentage of students answering all the items on the cognitive tests correctly
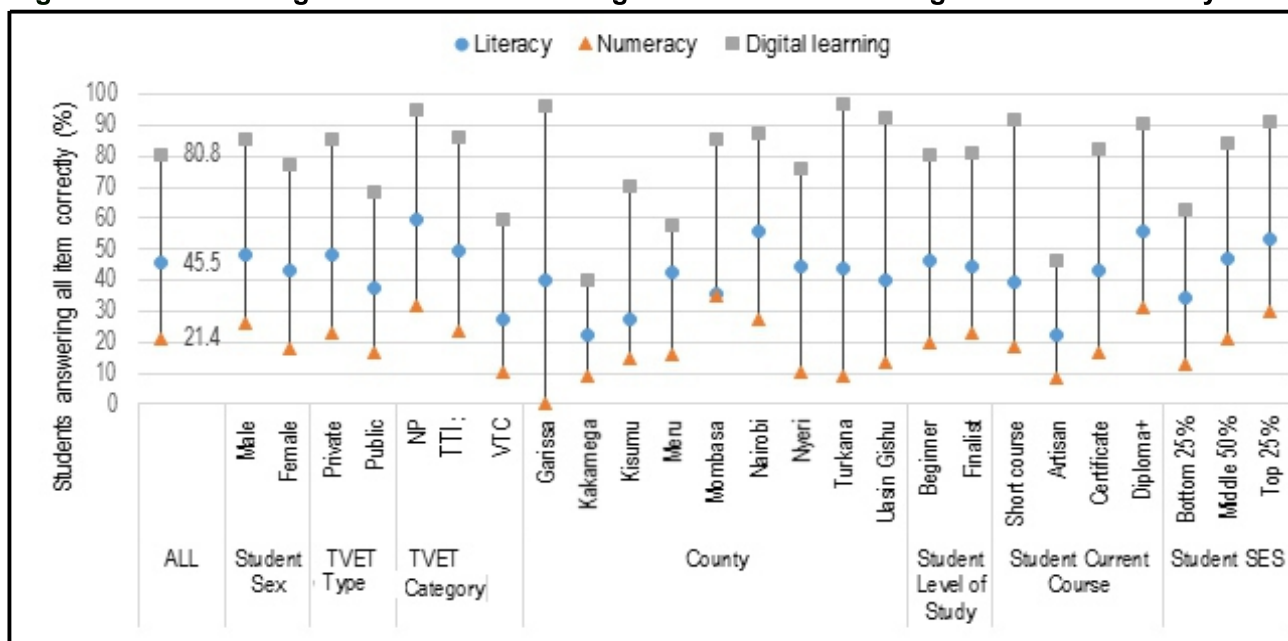
4   Characteristics of instructors and their perceptions on skills

This chapter presents information on the 347 TVET instructors including their personal characteristics, academic and professional backgrounds and experience. Their perceptions regarding the coverage of skills during training activities, and their incorporation into training courses of activities known (or perceived) to nurture soft skills are also presented. TVETA provides a trainer's qualification framework that describes qualifications for each level of trainers, namely; Level I (Technical Instructor), Level II (Trainer), Level III (Senior Trainer/Developer) and Level IV (Principal Trainer/Manager). The framework describes roles, qualifications, core competencies and trainer's curriculum for each level. A Technical Instructor sets training material, equipment for practical workshop or laboratory and maintains training equipment. The Trainer conducts technical training and competency assessments while a Senior Trainer/Designer designs and develops curricula, courses and instructional materials. The Principal Trainer/Manager supervises, develops and mentors technical trainers and developers. In the figures under this section, instructors are also referred to as tutors.

4.1   Instructor personal characteristics

As presented in Figure 4.1 about three in every five instructors were male (60.8%) with a large proportion of these instructors teaching in private institutions (71.5%) and TTIs (72.9%), primarily on temporary employment contracts (59.1%). Half of these

instructors were in institutions located in Nairobi County (47.8%), and a majority were involved in training both first and final-year students (88.5%).

Instructor age and experience: Results for instructor age and instructor years of teaching experience are displayed in **Figure 4.2** and **Figure 4.3**, respectively. The average instructor was 35.5 years of age and had taught for 7.7 years. The average age or years of teaching experience did not vary much by sex although on average, male instructors were 1.5 years younger than their female colleagues. Instructors in public institutions were on average about 3.7 years older and more experienced (by 2.9 years) than those in private institutions. The two semi-arid counties (Garissa and Turkana) had the youngest and the least experienced instructors. Given the perceived harsh environment in these two counties, it is likely that instructors in these two counties tend to migrate to other counties once they have gained some experience or become more marketable.

Instructor workload: Results for instructor's teaching workload are presented in Figure 4.4. On average, instructors taught for 24.6 hours per week, and this value did not differ much between public (24.1) and private (24.7) institutions. This seems to contradict the anecdotal information that instructors in private institutions have heavier workloads. In general, instructor workloads were highest in VTCs (28.0) and Kisumu County (30.0), and lowest in NPs (21.2) and Garissa County (20.3). The workload reported here is limited to actual teaching hours and does not include time used for preparations, advisory services, consultations or any other activities that support their core teaching responsibilities or functions.

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[19] Trainer Qualification Framework by TVETA available on http://www.tveta.go.ke/wp-content/uploads/2019/06/Final-draft-reviewed-summary-Trainers-Qualification-Framework-2019_03_07-.pdf

Figure 4.1:   Distribution of instructors by various characteristics
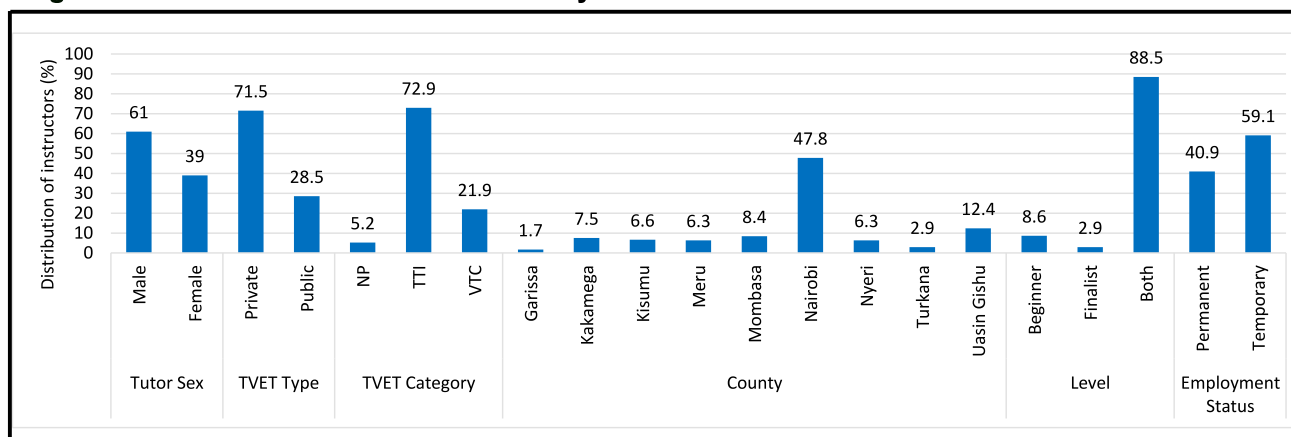
Figure 4.2:   Instructors' age
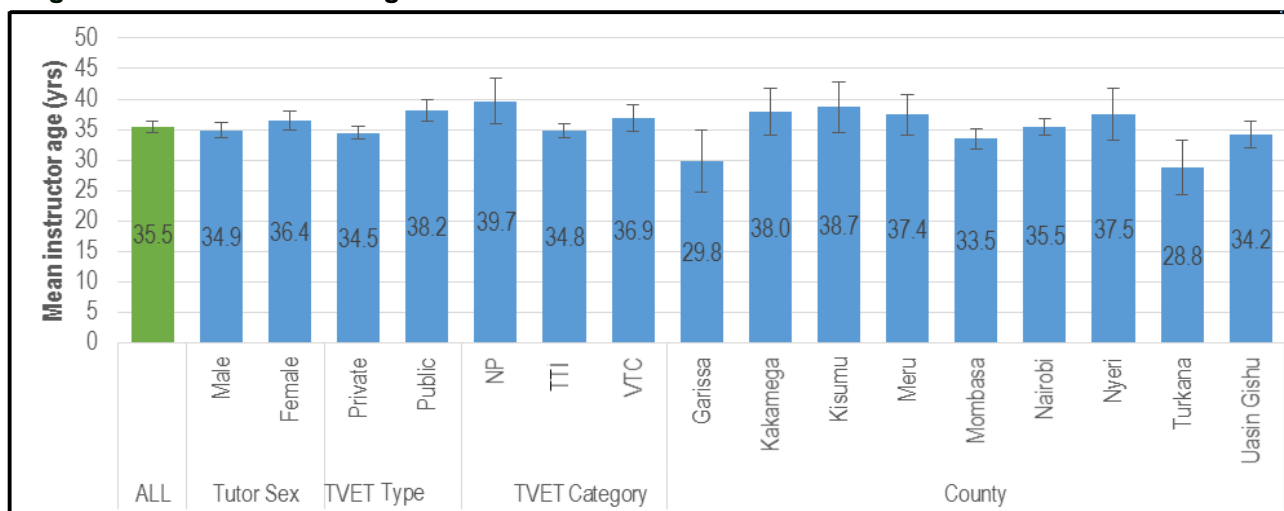
Figure 4.3:   Instructors' years of experience
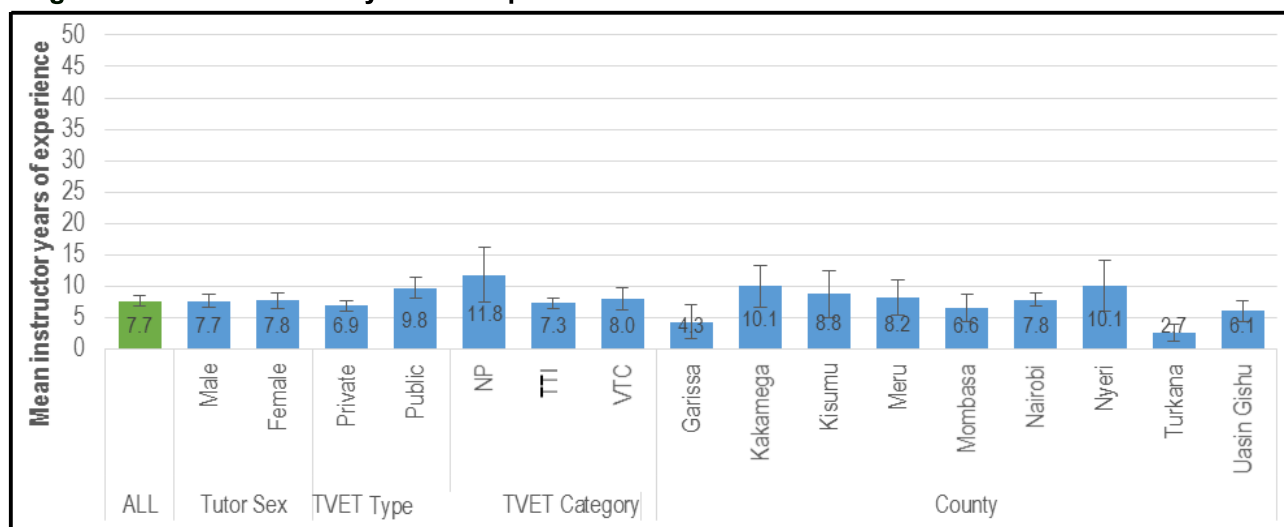
Figure 4.4:   Instructors' teaching workload per week
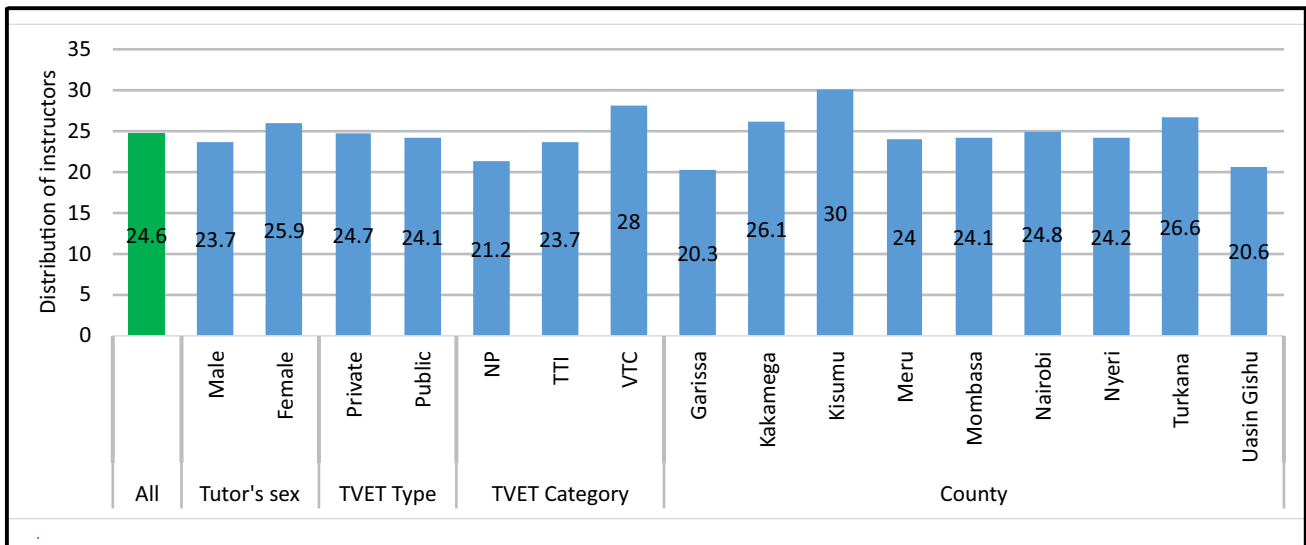
4.2 Instructor academic education, technical training and refresher courses

The highest levels of education and technical training completed for instructors are shown in **Figure 4.5** and **Figure 4.6** respectively. Details on refresher (or in-service) courses completed within the previous three years are shown in **Figure 4.7**.

Academic education completed: Overall, a vast majority of the instructors (over 95%) interviewed had completed college or university education. However, the institutions in the study based in Kisumu and Kakamega had noticeable proportions of instructors without college or university education. This was not surprising as these two counties had the highest proportions (42.3% and 56.9%, respectively) of students enrolled in artisan courses (see **Figure 3.12** in Section 3.4), which are lower level courses and do not require instructors who have completed university education.

Technical training completed:

As expected, a vast majority of the instructors (over 90%) had completed technical training in TVET and/or university at least at the artisan or certificate level. However, the number of instructors without technical training (skills needed to operate a particular technology) was noticeable in Uasin Gishu (25.6%), Mombasa (20.7%), and Nyeri (18.2%).

Refresher or in-service courses:

About four in every ten (43%) instructors reported having completed at least one refresher course within the previous three years. Completion levels were almost similar among female (44%) and male (41%) instructors, and across private (44%) and public (39%) institutions. The levels were markedly higher in NPs (56%) than TTIs and VTCs (both at 42%). Turkana (10%) and Mombasa (62%) counties recorded the lowest and the highest levels, respectively. During the validation workshop, it was observed that the refresher courses are organized by the county government in the case of VTCs. The TTIs and NPs use the CDACC standard curriculum to organize refresher courses for their staff.

Figure 4.5:   Instructors' highest level of academic education completed

Legend: ■ No secondary education   ■ Secondary education   ■ College/TVET education   ■ University education

Y-axis: Percentage of Instructors (0% – 100%)

Category	Group	No secondary	Secondary	College/TVET	University
Tutor Sex	Male	1.7	3.2	40.3	54.8
	Female	0.9	2.4	33.2	63.5
TVET Type	Private	2.9	4.4	51.5	41.2
	Public	0.8	2.8	37.1	59.3
TVET Category	NP	4.0	4.0	48.5	43.4
	TTI	0.0		22.2	77.8
	VTC	0.8	3.2	34.4	61.7
County	Garissa	5.3	3.9	64.5	26.3
	Kakamega	0.0	16.7	83.3	
	Kisumu	3.8	11.5	57.7	26.9
	Meru	17.4	4.3	56.5	21.7
	Mombasa	0.0		63.0	36.4
	Nairobi	0.0	2.4	31.0	65.5
	Nyeri	0.0	2.4	34.3	62.7
	Turkana	0.0	4.5	54.5	40.9
	Uasin Gishu	0.0		80.0	20.0
			2	2.56	72.1

Figure 4.6:   Instructors' highest level of technical training completed

Legend: ■ No technical training   ■ Artisan/Certificate   ■ Diploma/Higher diploma   ■ Undergraduate degree   ■ Postgraduate degree

Y-axis: Percentage of instructors (0% – 100%)

Category	Group	No technical training	Artisan/Certificate	Diploma/Higher diploma	Undergraduate degree	Postgraduate degree
Tutor Sex	Male	8.4	12.1	39.8	28.8	11.0
	Female	9.0	11.4	34.1	32.2	13.3
TVET Type	Private	7.4	13.2	48.5	23.5	7.4
	Public	10.5	8.5	38.3	31.0	11.7
TVET Category	NP	3.0	21.2	43.4	23.2	9.1
	TTI	3.6	5.6	33.3	38.9	16.7
	VTC	8.7	9.1	36.4	32.4	13.4
County	Garissa	7.9	23.7	52.6	14.5	1.3
	Kakamega	0.0	50.0		50.0	0.0
	Kisumu	0.0	38.5	34.6	23.1	3.8
	Meru	0.0	21.7	56.5	17.4	4.3
	Mombasa	13.6	13.6	68.2		4.5
	Nairobi	20.7	24.1	20.7	17.2	17.2
	Nyeri	4.8	7.2	34.9	36.1	16.9
	Turkana	18.2	18.2	40.9	18.2	9.1
	Uasin Gishu	0.0		80.0	20.0	0.0
		25.6	4.7	39.5	30.2	0.0

Figure 4.7: **Percentages of instructors completing refresher courses in the last three years**
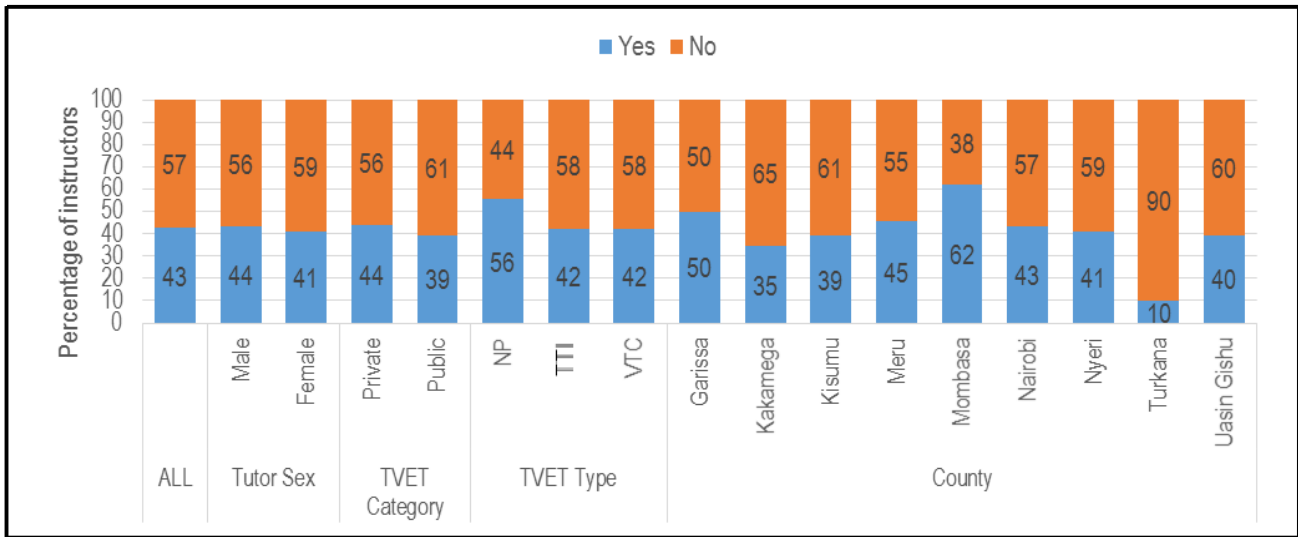
4.3 Factors perceived to hinder or limit instructors from carrying out their duties

Instructors were presented with a list of 12 factors and asked to rate the extent to which they limited or hindered them from carrying out their training duties as expected on a scale of 1-5 (ranging from 1(no extent) to 5 (very high extent)). For this report, if instructors rated a factor as limiting or hindering them 'to a moderate extent', 'to a high extent', or 'to a very high extent', that factor was deemed as hindering them from carrying out their duties, and accordingly coded as '1'. If instructors rated a factor as limiting or hindering them 'to less extent' or 'to no extent', then that factor was considered as not hindering them from carrying their duties and coded as '0'.

The percentages of instructors' ratings are displayed in Figure 4.8. Instructors generally perceived institution-related factors (such as facilities, machinery or materials (41.2%) and workshops or laboratories (39.2%)) as the biggest hindrance to carrying out their duties as trainers. This is congruent with the results from the students who felt that these factors were among the areas in which they needed greater support (see Figure 3.18 in section 3.5). On the other hand, student-related factors (such as student gender composition (11%)) and student religious background were rated as presenting the least hindrance to carrying out their duties.

Instructor scores on the 12 factors were added-up to compute a total score, and then converted to a percentage score (to be called 'Instructor hindering index') displayed in Figure 4.9. The value of the overall index was 24.8, and this did not vary much by instructor sex. The value for public institutions (32.8) was markedly larger than that for private institutions (21.6) – meaning that the level of hindrance to instructor duties by the factors under investigation was perceived to be higher in public institutions than private ones. In terms of counties, the hindrance levels were highest in Turkana (30.6) and lowest in Nairobi (18.9). Nevertheless, due to the small number of instructors involved in each county, the differences in the levels of hindrance across the counties were not statistically significant.

Figure 4.8:   Percentages of instructors and factors affecting their work
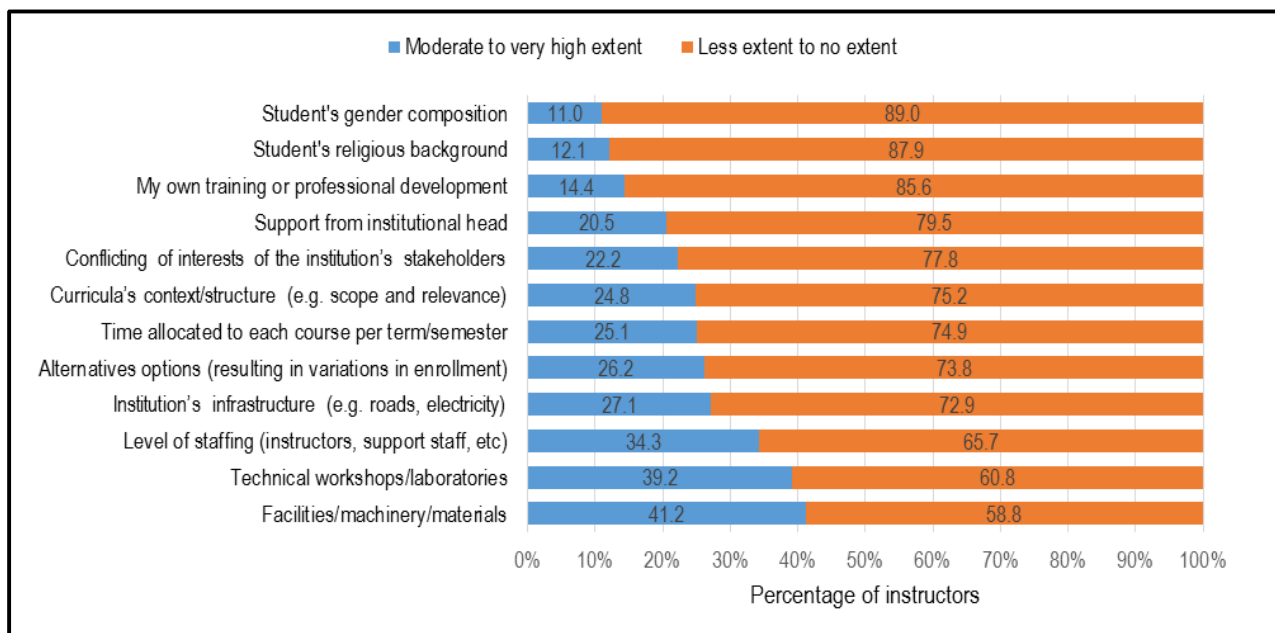
Figure 4.9:   Mean instructor hindering index
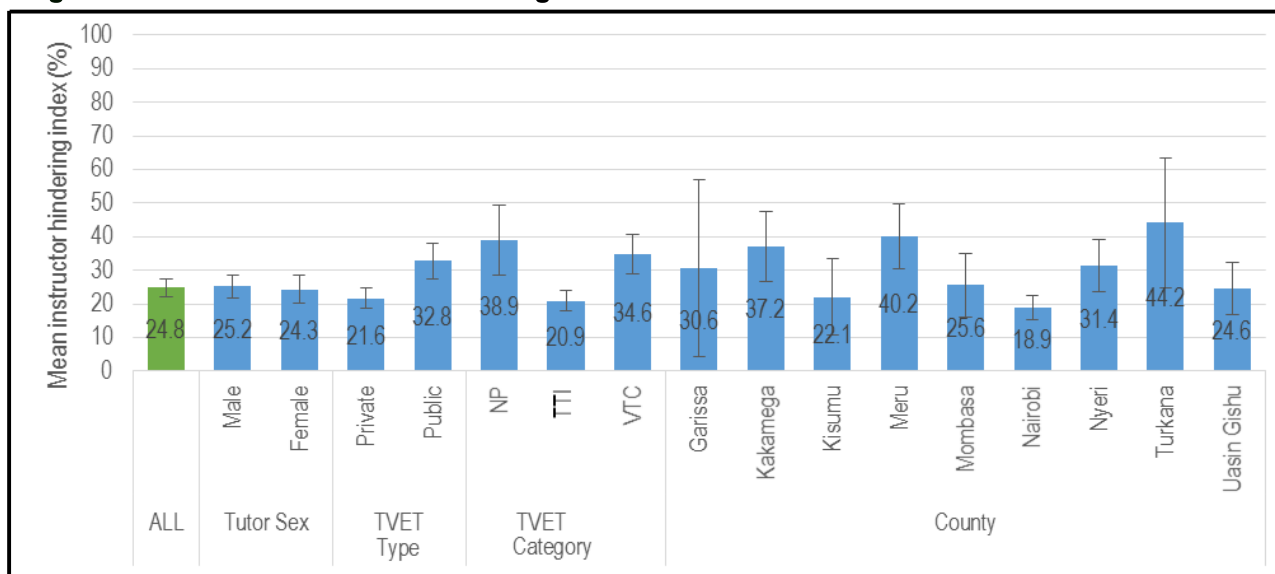
4.4 Instructor perceptions regarding their expertise in running courses

Instructors were asked to rate the extent to which they felt they were well equipped or up to standard in terms of their expertise in running the main courses they teach. In the study, ratings of 'to a moderate extent', 'to a high extent', or 'to a very high extent', were regarded as 'well equipped' in terms of expertise and the respective data was grouped together. Alternatively, ratings of 'to less extent' or 'to no extent' were deemed as 'not well equipped' and this data was grouped together. The results are shown in

Figure 4.10.

On average, a vast majority of the instructors (over 90%) felt that they were well equipped in terms of expertise to run the main courses they teach. Male instructors were slightly more likely to say they were well equipped (93%) than female instructors (89%), but these levels were about the same among instructors in public (91%) and private (92%) institutions. The responses by categories of TVET reveals a pattern that mirrors their sophistication – with 100% of instructors in NPs feeling fully equipped compared to 93% in TTI and 84% in VTC.

Figure 4.10: **Instructor perceptions on the extent to which they are well equipped**
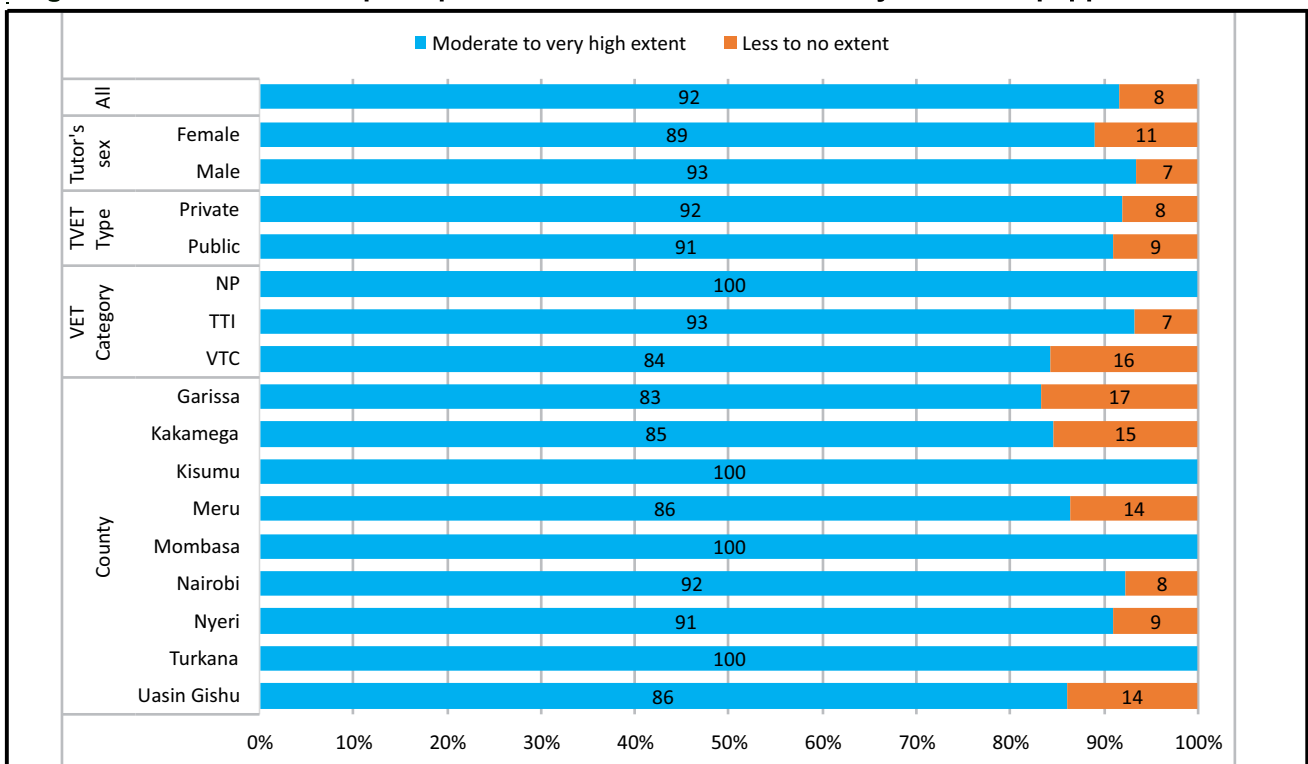
4.5 Instructor training on WYD skills

Instructors were presented with lists of four different groups of WYD skills and asked to state whether or not they were trained to teach those skills. Given that nine in every ten, and four in every ten of the instructors have undertaken in-service training and refresher courses, respectively, it is logical to argue that the WYD skills were acquired during these trainings. The four groups of skills were namely academic and technical skills (7), life skills (7), core values (5), and social-emotional skills (5). In the data analyses, instructors who said that they were trained to teach a particular skill in the list were awarded a score of '1' on that skill while those who stated otherwise were awarded a score of '0'.

Instructor scores on the items in each group were added-up to compute four separate total scores – one for each of the mentioned groups. Each of these total scores were then converted to a percentage.

Figure 4.11 shows the mean percentages of instructors who said they were trained in each of the four groups of skills. Overall, the level of training in these skills was highest for life skills (60.8%), followed by academic skills (57.7%), then core values (57.2%) and lowest for social-emotional skills (50.0%). There was not much difference in these levels of training among male and female instructors, or among instructors in public and private institutions. In general, the levels of training were lowest in Turkana County and highest in Nyeri County. Overall, about 56.4% of the instructors were trained in WYD skills. This could partly explain the high (79.7%) achievement scores observed among students' WYD skills assessments.

Figure 4.11:   Percentages of instructors trained to teach selected skills
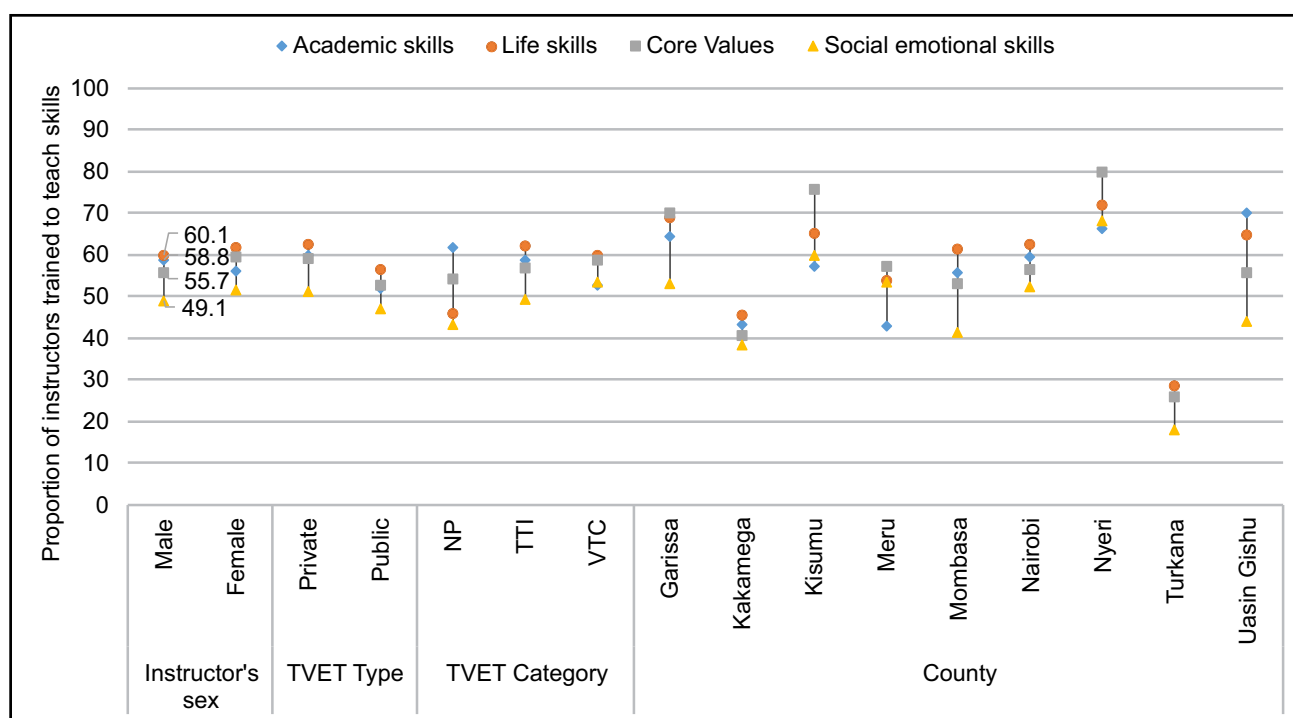
20 The numbers in parenthesis are the number of skills involved in that group.

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4.6 Instructor perceptions on coverage of WYD skills in training courses

Results on instructors' perceptions regarding the coverage of various skills in the courses they teach are presented in Figure 4.12. Instructors were presented with a list of 15 skills and asked to rate the level of coverage of each skill listed in the courses they teach. There were four options to this question, namely: 1=not covered at all; 2=less covered; 3=somehow covered; and 4=well covered. For this report, data from the first three options were analyzed under one category 'somehow covered to not covered at all', while those from the fourth option were analyzed under the alternative category called 'well covered'. Presenting data this way offers a clear visual presentation while at the same time emphasizing positive perceptions (well covered). That said, the distribution of the individual responses show that options 1, 2 and 3 had low responses.

About seven out of ten instructors perceived technical and entrepreneurship skills (71.8% for both) to be well covered, while about two thirds perceived life skills (65.7%) and basic computing skills (65.4%) as well covered. In general, the levels of coverage for non-academic skills (e.g. relationships, sexual and reproduction health skills) were perceived to be lower than those for academic/technical skills. These results imply that there is an opportunity for TVETs to improve their levels of coverage of WYD skills in their training courses and incorporate others in non-formal and informal training tasks/activities.

Figure 4.12: Instructor perceptions regarding level of coverage of skills in training
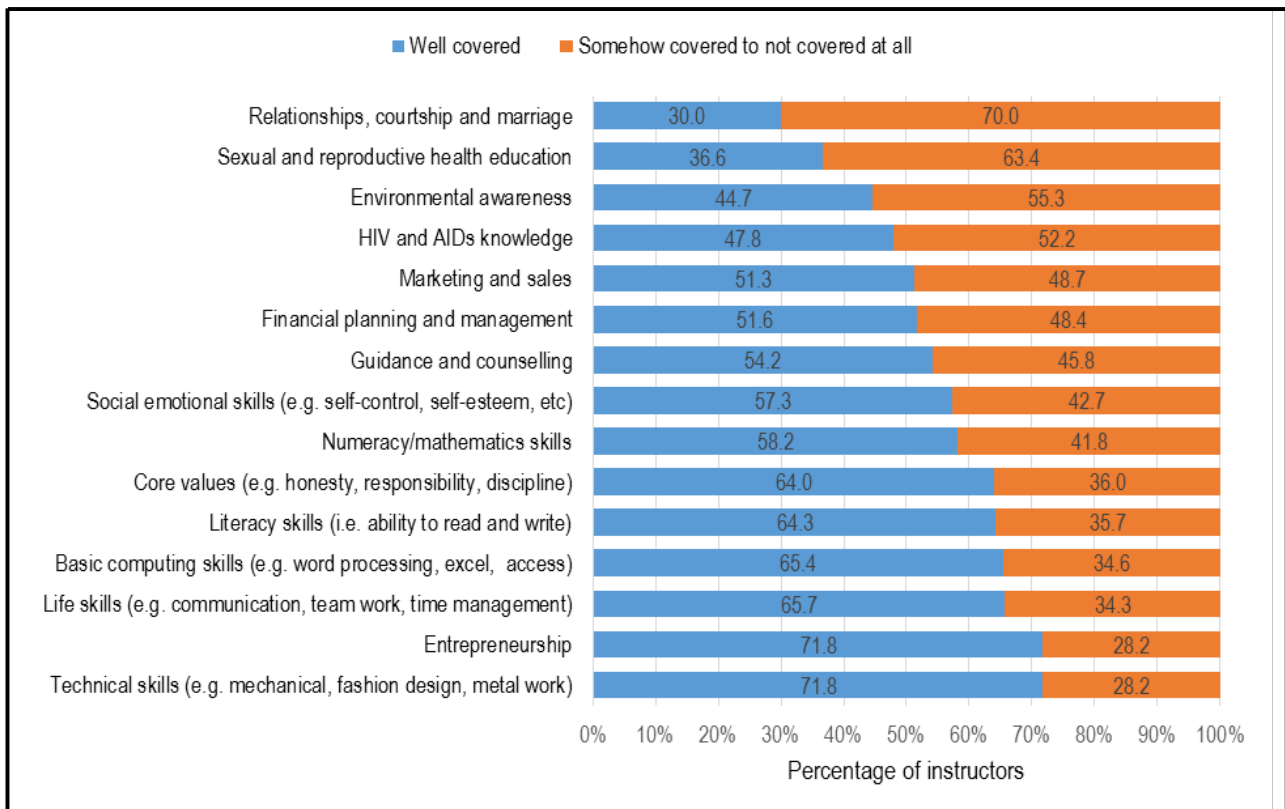
4.7 Instructor activities for nurturing WYD skills during training

Instructors were presented with a list of 20 activities known or perceived to nurture WYD skills such as life skills and social emotional skills, and asked to identify which of the listed activities happen in the training courses they teach (TVETA, 2019; Gracia, 2014; Heckman & Kautz, 2013; Meyers, 2003; Pagliaro, 2001). In this report, only eight of the 20 activities listed were considered utmost crucial, and thus reported here.

The percentages of instructors identifying each of the eight activities as happening in their classes are depicted in **Figure 4.13**, while frequencies of these activities in the classes are depicted in **Figure 4.14**. A vast majority (over 80%) of the instructors identified the eight activities as happening in the classes. Overall, in terms of frequencies of the activities in classes, slightly below half (47.0%) of the instructors identified all the eight activities listed as happening in their classes which presents an opportunity for more instructors to consider incorporating these activities in their courses. In terms of subgroup analyses, the levels of all the eight activities happening were about the same among male (46.4%) and female (47.8%) instructors, but these levels were higher in private institutions (50.4%) than in public institutions (38.4%). In addition, the levels of all eight activities were lowest in Meru (27.3%) and highest in Uasin Gishu (65.1%). This may be explained by the background of the institutions surveyed – in Meru, majority of the institutions were public VTCs while in Uasin Gishu majority were private TTIs. It is possible that the instructors in these institutions approach training activities differently given the various backgrounds of their students.

Figure 4.13: Instructor activities for nurturing life skills and social-emotional skills

This happens in the courses that I teach …

Legend: ■ Yes ■ No

Activity	Yes	No
I encourage my students to critique their classmates' work	80.7	19.3
I invite professionals to talk to my students about their careers/emotions	81.3	18.7
I encourage my students to resolve problems using their own methods	83.3	16.7
Once in a while I give my students a lot of work to be completed within strict deadlines	84.1	15.9
At times, I give my students different task to be completed within a short time	89.3	10.7
I encourage my students to present their works to their classmates	92.5	7.5
I encourage my students to pull resources together in teams as oppose to stand-alone initiatives	93.7	6.3
I provide opportunities for my students to practice what they have learned in the work place	96.8	3.2

Percentage of instructors

Figure 4.14: Instructor incorporation of activities for nurturing life skills and social emotion skills

Legend: ■ <5 activities ■ 5-7 activities ■ 8 activities

Category	<5 activities	5-7 activities	8 activities
ALL	5.5	47.6	47.0
Male (Tutor Sex)	7.1	46.4	46.4
Female (Tutor Sex)	2.9	49.3	47.8
Private (TVET Type)	6.0	43.5	50.4
Public (TVET Type)	4.0	57.6	38.4
NP (TVET Category)	0.0	72.2	27.8
TTI (TVET Category)	6.3	46.2	47.4
VTC (TVET Category)	3.9	46.1	50.0
Garissa (County)	16.7	50.0	33.3
Kakamega (County)	7.7	42.3	50.0
Kisumu (County)	8.7	52.2	39.1
Meru (County)	4.5	68.2	27.3
Mombasa (County)	3.4	55.2	41.4
Nairobi (County)	6.6	44.6	48.8
Nyeri (County)	0.0	68.2	31.8
Turkana (County)	10.0	40.0	50.0
Uasin Gishu (County)	0.0	34.9	65.1

Percentage of instructors

5 Characteristics of TVET managers and their institutions

This chapter focuses on the information about the 171 TVET managers and their institutions. Information about the managers includes their demographics, as well as their work and education backgrounds. Information about the institutions includes the levels of training courses offered, coverage of WYD skills in the training courses, and activities included in the training programs to nurture these skills.

5.1 Manager personal characteristics and work backgrounds

Results of manager sex, employment status, age, years of experience working as teachers and managers, completion of TVET management courses, and participation in refresher or in-service courses in the previous three years are presented in Table 5.1 .

Managers' gender and employment status: Over two-thirds of the TVET managers interviewed in this study were male (68.4%). Unlike the instructors who were mostly on temporary employment contracts (see Section 3.1), a vast majority of the managers were on permanent contracts (69%) – perhaps a deliberate effort by the institutions to ensure stability in their management.

Manager age and years of experience: Results show that the average age of managers was 35.5 years, had taught for 12.7 years, and worked as a TVET manager for 5.3 years. The average age or years of experience as TVET managers did not vary much by sex – but male managers were on average about two years more experienced as teachers than their female counterparts. Managers in public institutions were on average about 4.3 years older, had more experience as teachers (by 8.6 years) and were slightly more experienced as managers (by 0.9 years) than those in private institutions.

Management and refresher courses: Slightly less than half (48.5%) of the managers involved in this study had completed training on management of TVET institutions, while about three-fifths (62%) of them had completed at least one refresher course within the previous three years (refresher courses are offered by county governments at the level of VTCs or self-organized in the case of TTIs/NPs). The levels of management training were higher in public institutions (63.8%) than in private institutions (42.1%) – but the opposite was true for levels of refresher courses (public 64.5%, private 53.2%). We gathered during the validation meeting that in private institutions, management would not want to incur additional costs in human resource training, while in public institutions, progression is achieved through additional training, and there is government sponsorship.

Table 5.1: Background characteristics of TVET managers

| | | Cases | | Age (yrs) | Experience | | TVET manage-ment training (%) | Refresher courses in last 3 yrs (%) |
		N	%		As a teacher (yrs)	As a TVET manager (yrs)		
Manager Sex	Male	117	68.4	41.3	12.7	5.3	47.8	65.0
	Female	54	31.6	42.4	10.8	5.2	50.0	55.6
TVET Category	Private	118	69.0	40.1	9.7	5.0	42.4	65.3
	Public	53	31.0	45.4	18.3	5.9	62.3	54.7
TVET Type	NP	8	4.7	52.3	25.4	6.6	75.0	75.0
	TTI	124	72.5	40.8	11.0	5.2	46.0	65.3
	VTC	39	22.8	41.9	13.5	5.3	51.3	48.7
County	Garissa	3	1.8	49.0	14.3	3.0	33.3	33.3
	Kakamega	13	7.6	43.6	17.5	5.8	46.2	38.5
	Kisumu	12	7.0	37.4	9.8	3.3	75.0	83.3
	Meru	12	7.0	48.1	19.5	6.7	66.7	50.0
	Mombasa	16	9.4	44.6	10.6	6.8	25.0	50.0
	Nairobi	79	46.2	40.4	10.3	4.7	45.6	67.1
	Nyeri	11	6.4	44.8	14.9	5.5	36.4	81.8
	Turkana	4	2.3	32.8	9.8	5.0	75.0	50.0
	U. Gishu	21	11.9	40.2	12.3	6.3	57.1	57.1
Employment Status	Permanent	118	69.0	43.3	13.2	5.8	51.6	58.8
	Temporary	53	31.0	37.8	9.6	3.9	41.5	69.8
ALL		171	100.0	41.6	12.1	5.3	48.5	62.0

5.2 Manager academic education and technical training

The TVET managers are mandated with general management of the institution, planning, implementation and quality control of the learning process, for instance, checking the scopes of works, evaluation of student's performance, setting short-term and long-term goals, popularization of courses offered (marketing), recruitment of students and instructors, resource mobilization, risk management and cost control.

The results for the highest levels of education and technical training completed by managers are shown in Figure 5.1 and Figure 5.2 respectively. The key points to note regarding these results are summarized in the next paragraphs.

Academic education completed: Nearly 98%

of the TVET managers had completed college or university education. Levels of completion for college or university education did not vary much by manager sex or employment status. However, levels of university education were much lower in VTCs (44.4%) than in TTIs (78.4%) or NP (85.7%).

Technical training completed: A vast majority of the TVET managers (85.7%) had completed technical training at least at artisan or certificate level – meaning that 14.3% had no technical training. The levels of managers without technical training were about the same among males (14.8%) and females (13.2%). However, levels of managers with post-graduate degrees in technical training were much higher in NPs (57.1%) than in TTIs (28.8%) or VTCs (13.9%).

5.1 Manager highest level of academic education completed
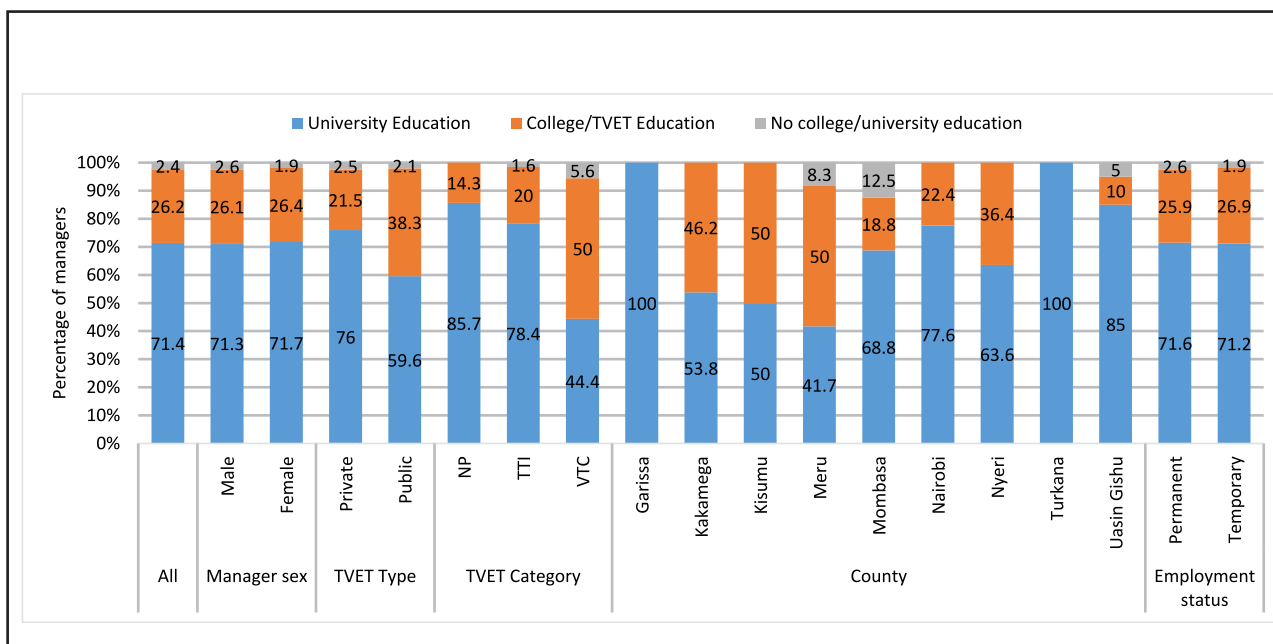
Figure 5.2: Manager highest level of technical training completed
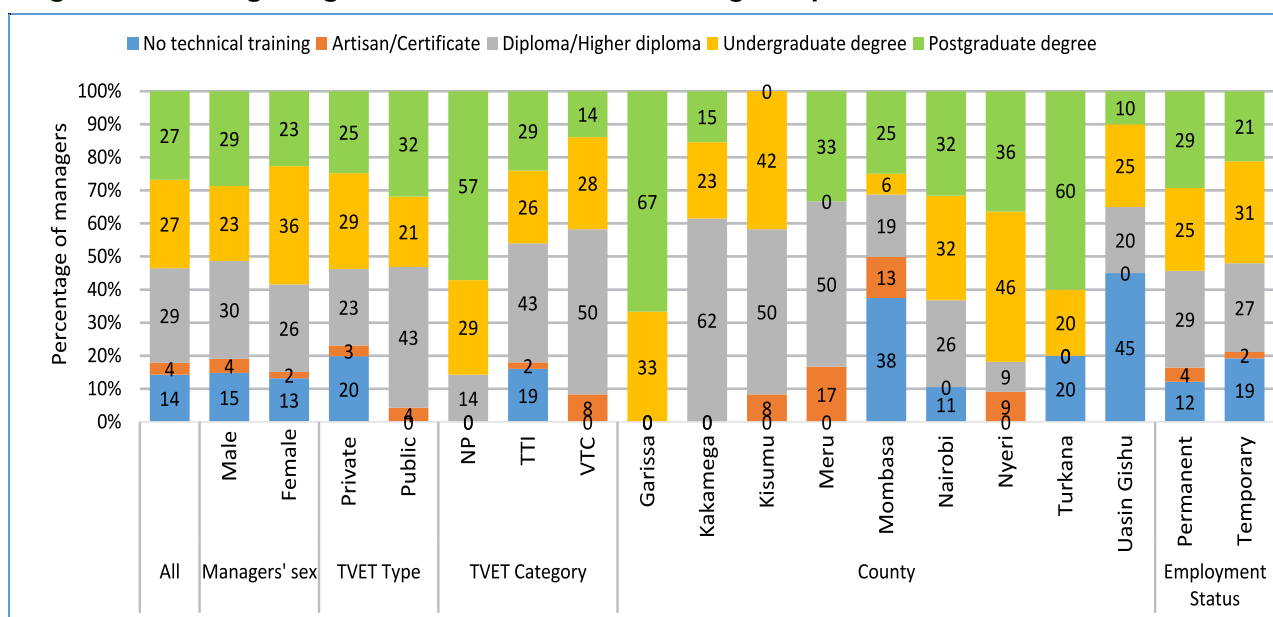
5.3 TVET background information

This section covers the background information on the TVET institutions involved in this study – including the levels of training courses offered in these institutions, manager perceptions regarding levels of training equipment, and the status of training facilities and machinery.

TVET training courses: Results of levels of training courses offered in the TVET institutions involved in this study are presented in Figure 5.3. Nearly all these institutions offered certificate courses (91.7%), while about three-quarters of them offered diploma or higher diploma courses (75.6%).

Equipment and training facilities: Results of the managers' perceptions regarding levels of equipment in their institutions and the status of the training facilities or machinery are displayed in **Figure 5.4** About two out of five institutions (39.9%) were perceived as adequately equipped, these results are in tandem with those of the students (**Figure 3.18**) and instructors (**Figure 4.7**) which highlights the necessity to augment the facilities available. In general, private institutions were perceived as better equipped than public institutions, while NPs were perceived as better equipped than TTIs and VTCs (**Figure 4.9**). This is consistent with the observations made by trainers (only about two fifths of instructors felt they had the requisite facilities for training) and by students where only about a third of them (34.8%) felt that they had well equipped learning facilities.

Figure 5.3: Level of courses offered in TVET institutions
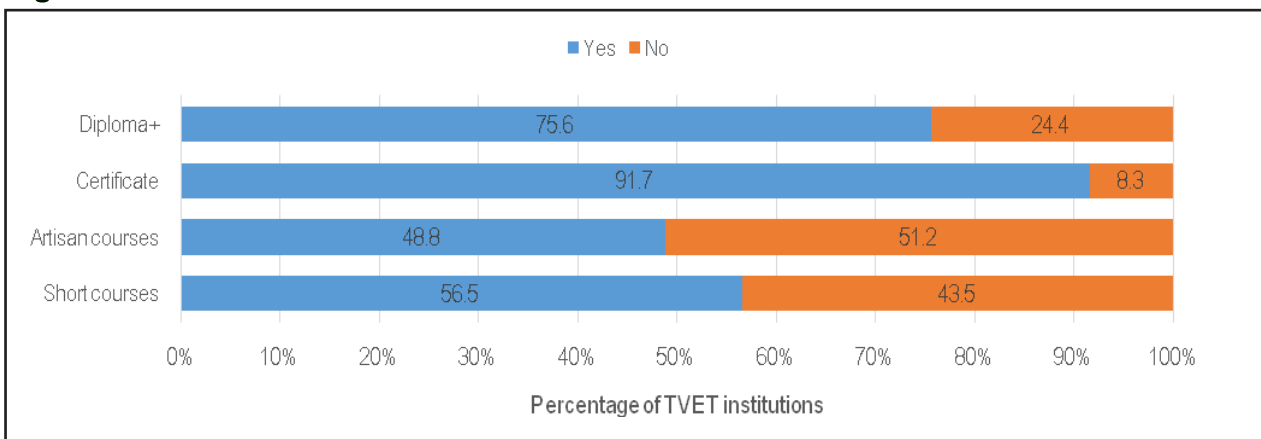
Figure 5.4: Levels of equipment and status of training facilities/machinery
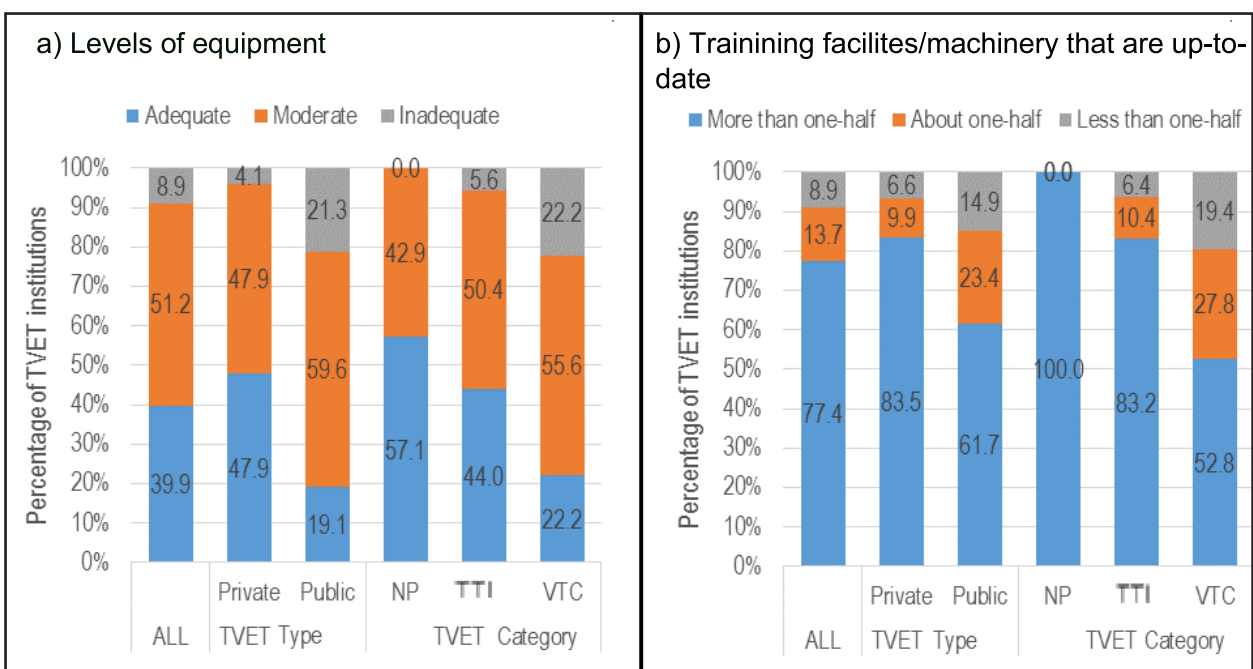
5.4 Manager perceptions on coverage of WYD skills in TVET training courses

Managers were presented with the same list of 15 WYD skills presented to instructors (see Section 4.6) and asked to rate the level of coverage for each skill listed among the courses offered in their institutions. Manager responses to the coverage of these skills were analyzed following the same procedure described in the previous chapter (Section 4.6). Results of managers' perceptions regarding the coverage of these skills in TVET training courses are presented in **Figure 5.5**.

A vast majority of the managers perceived technical skills (88.1%), literacy skills (85.7%), and social-emotional skills (81.5%) to be well covered. In general, the levels of coverage for non-academic skills (e.g. relationships, sexual and reproduction health skills) were perceived to be lower than those for academic/technical skills. Though this pattern is consistent with the instructors' perceptions, managers generally perceived the skills as slightly better covered when compared to instructors. These results present an opportunity for managers to improve the coverage of these skills in their institutions.

Figure 5.5: Manager and instructor's perceptions regarding level of coverage of skills in TVET

Instructors' perceptions

Legend: ■ Well covered ■ Somehow covered to not covered at all

Skill	Well covered	Somehow covered to not covered at all
Relationships, courtship and marriage	30.0	70.0
Sexual and reproductive health education	36.6	63.4
Environmental awareness	44.7	55.3
HIV and AIDs knowledge	47.8	52.2
Marketing and sales	51.3	48.7
Financial planning and management	51.6	48.4
Guidance and counselling	54.2	45.8
Social emotional skills (e.g. self-control, self-esteem, etc)	57.3	42.7
Numeracy/mathematics skills	58.2	41.8
Core values (e.g. honesty, responsibility, discipline)	64.0	36.0
Literacy skills (i.e. ability to read and write)	64.3	35.7
Basic computing skills (e.g. word processing, excel, access)	65.4	34.6
Life skills (e.g. communication, team work, time management)	65.7	34.3
Entrepreneurship	71.8	28.2
Technical skills (e.g. mechanical, fashion design, metal work)	71.8	28.2

Percentage of instructors

5.5 Nurturing WYD skills among students in TVET institutions

The managers were presented with the same list of 15 WYD skills described in the previous section. In this case they were asked to state whether or not their institutions have curricula or syllabi that cover those skills (results in **Figure 5.6**).

In general, the levels of availability of curriculum or syllabus documents were higher for academic/technical skills than for non-academic skills such as relationships, and sexual reproductive health education. Levels of curriculum documents for social-emotional skills and core values were 64.9% and 70.8% respectively, meaning that a substantial proportion of the institutions (roughly 30%) did not have these documents.

Figure 5.6: Availability of documents covering various skills areas in TVET

TVET institution has curriculum/syllabus covering ...

Legend: ■ Yes ■ No

Skill	Yes	No
Relationships, courtship and marriage	39.3	60.7
Sexual and reproductive health education	50.0	50.0
Environmental awareness	50.6	49.4
HIV and AIDs knowledge	62.5	37.5
Social emotional skills (e.g. self-control, self-esteem, etc)	64.9	35.1
Guidance and counselling	67.9	32.1
Core values (e.g. honesty, responsibility, discipline)	70.2	29.8
Literacy skills (i.e. ability to read and write)	70.8	29.2
Financial planning and management	72.6	27.4
Numeracy/mathematics skills	75.0	25.0
Marketing and sales	75.0	25.0
Technical skills (e.g. mechanical, fashion design, metal work)	86.9	13.1
Life skills (e.g. communication, team work, time management)	88.1	11.9
Basic computing skills (e.g. word processing, excel, access)	91.1	8.9
Entrepreneurship	93.5	6.5

Percentage of TVET institutions

TVET managers were also presented with a list of 23 activities known or perceived to nurture WYD skills such as life skills, social-emotional skills and core values, and asked to identify which of the listed activities happen in their institutions (TVETA, 2019; Gracia, 2014; Heckman & Kautz, 2013; Meyers, 2003; Pagliaro, 2001). In this report, only 15 of the 23 activities listed were considered most crucial, and so are reported here. Manager responses to the 15 activities were analyzed following the same procedure described in the previous Section 4.7 regarding instructor activities for nurturing WYD skills during training programs (also see appendices).

The percentages of managers identifying each of 15 activities as happening in their institutions are presented in Figure 5.7, and the frequency of these activities in the institutions are presented in **Figure 5.8**. At least two-thirds of the institutions practiced any of the assessed activities. . On average, slightly more than one-third (35.7%) of the TVET managers identified all the 15 activities listed as happening in their institutions, while slightly over half (53.6%) identified 11-14 activities as happening as demonstrated in **Figure 5.8**. The levels of these activities were highest in NPs and lowest in VTCs. Analysis of responses from managers on activities nurturing life and social-emotional skills indicate large differences between male and female managers. About one half of the male and two thirds of the female managers identified 11-14 activities as happening. The percentage of managers identifying each of the 15 activities as happening in their institution was 43% for males and 21% for females. It is therefore possible that the emphasis given to activities nurturing life and social-emotional skills could partly be attributed to the manager's sex.

Figure 5.7: TVET activities for nurturing life skills and social-emotional skills
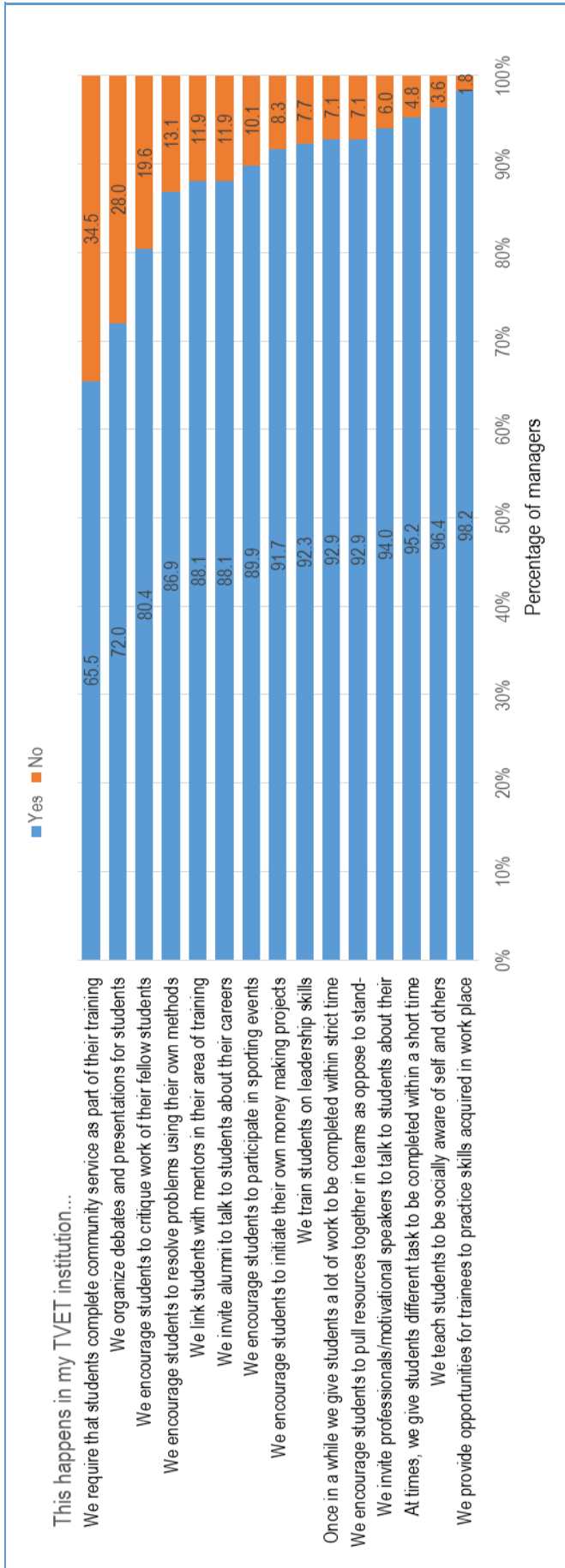
Figure 5.8: TVET incorporation of life skills and social-emotional skills in training activities
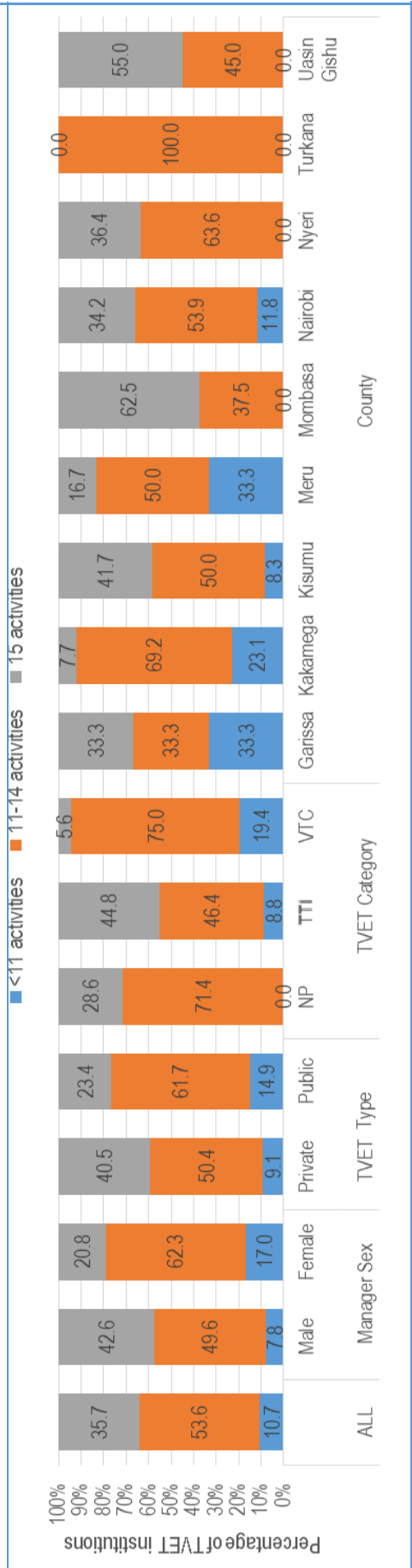
5.6 Policy documents and services

Written down policies and procedures provide guidelines for anticipated practices that are aligned with the expectations of the organizations and stakeholders. Availability of policy documents demonstrates intentions towards quality and standardization of service delivery. In this study, managers were presented with a list of key policies and services in TVET institutions and asked to identify the ones present in their institutions.

From the results presented in **Figure 5.9**, it can be seen that the TVET institutions were doing well with regard to the number with industrial attachment policies (92.9%), industrial attachment liaison officers (85.7%) and career counseling departments (80.4%). However, some key policies were less prevalent in TVET institutions, including sexual harassment policies (50.0%), community service policies (46.4%), and general safeguarding policies (35.1%).
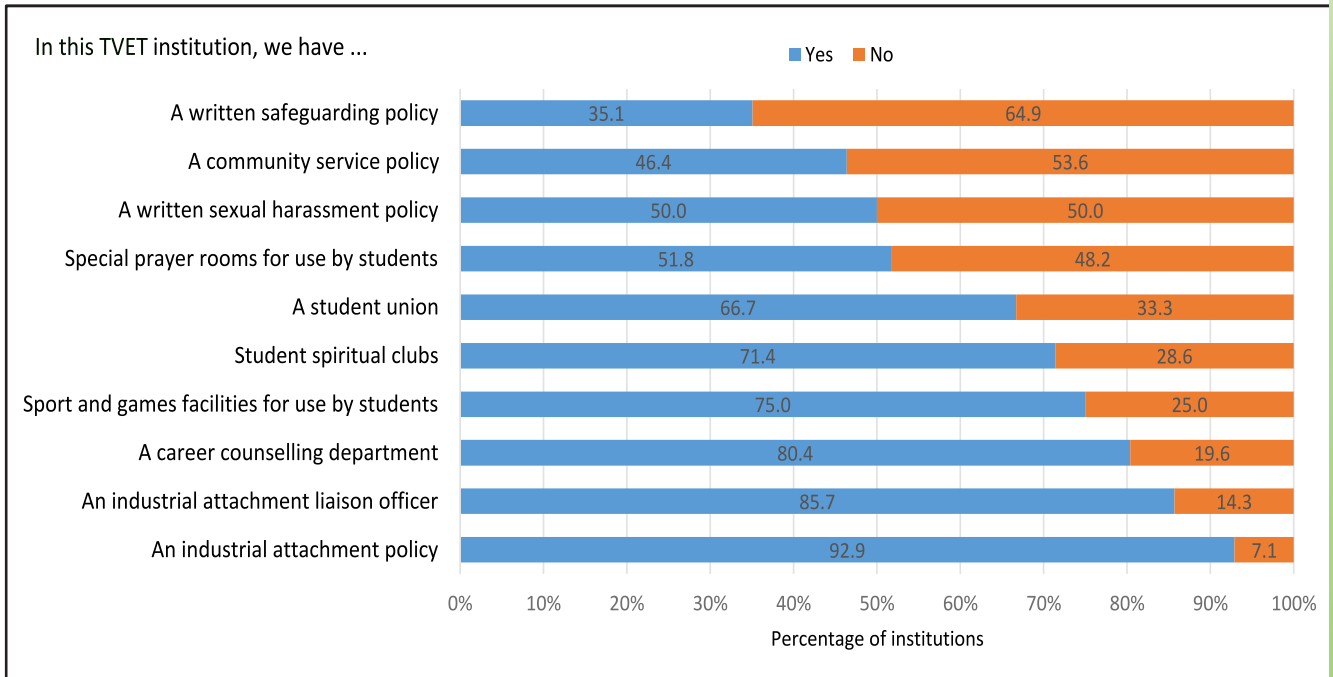
Availability of all the ten key policy documents was explored by different categories as portrayed in **Figure 5.10**. Overall, only seven percent of the institutions had all the ten documents, slightly less than two thirds had between six and nine policy documents, and about a third had five or less documents. Slightly more public institutions had all the documents than the private institutions and

a similar trend was seen for institutions that had between six and nine documents. Across TVET categories, a bigger proportion of VTCs had all 10 documents compared to TTIs and NPs. None of the eight NPs sampled had all 10 documents. Across the counties, only 7% of the institutions had all the 10 documents.

In terms of use, **Figure 5.7** indicates implementation of industrial attachment, where almost all the institutional heads specified that they provided opportunities for students to practice what they have learned in the workplace. In addition, these results indicate that about nine out of ten institutions invite speakers to address students about careers. This indicates that some institutions promote the activities outlined in the policy even though they do not have readily available documents for reference. In terms of participation in games in the year preceding the survey (2017), the findings indicated that only 56.1% of the institutions participated as portrayed in Figure 5.11. Results from instructors on coverage of various courses as demonstrated in **Figure 4.12** show that there is a strong link between course coverage and availability of related policies. For instance, relationships, courtship and marriage, sexual and reproductive health education, environmental awareness and HIV and AIDs knowledge had low coverage, possibly due to the absence of related policy documents.

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[21]Obtained from: https://www.effectivegovernance.com.au/do-you-need-a-policy-on-policies/

Figure 5.9:   Availability of key policy documents and services in TVET institutions

In this TVET institution, we have …

Figure 5.10: Availability of key policy documents by TVET type, category and county
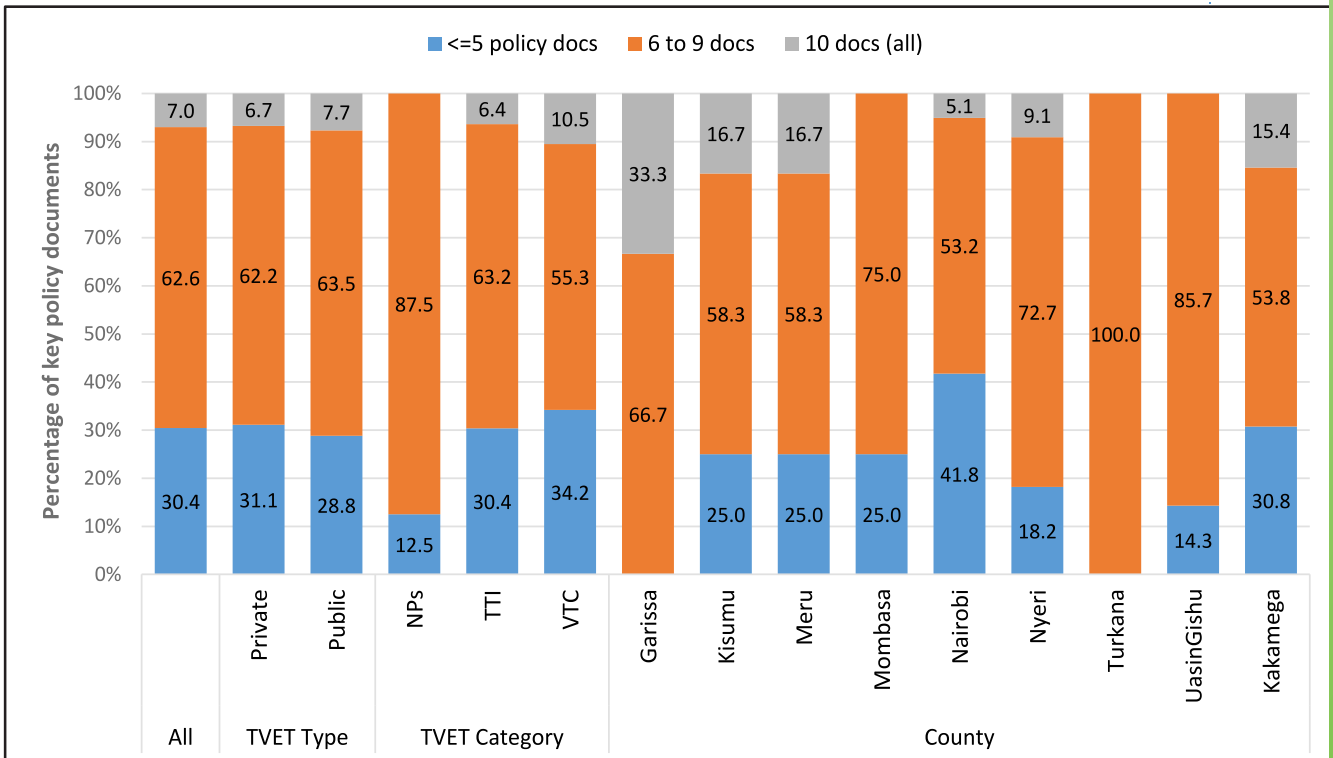
Figure 5.11: Students' participation in at least one external sports tournament in the previous year (2017)

No 44%

Yes 56%
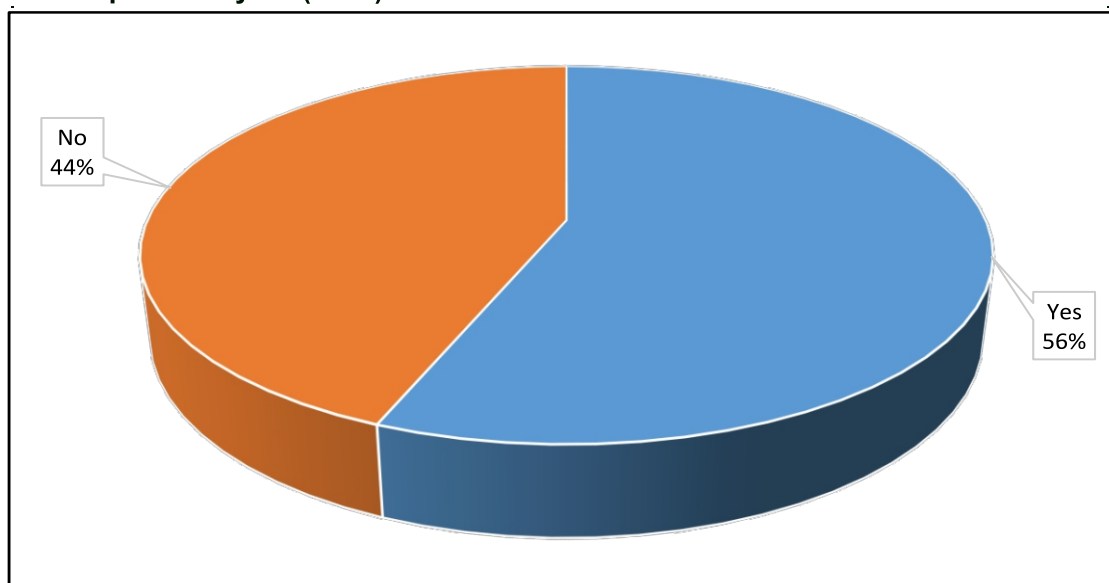
WYD Multilevel regression analysis model

A weighted score of WYD, was computed based on five WYD areas, namely, functional numeracy, functional literacy, digital learning, and soft skills (capabilities and values, and case study assessment) all of which have been examined in different sections above. The composite score was based on the proportion of students who were able to answer the items under these areas correctly. A description of how the overall WYD was computed is provided in Appendix 2.6. In addition, the Appendix also presents WYD performance by quartile which indicates that above 75% of students attained scores greater than 75% in the capabilities and values assessment (consisting of 71 items) while more than 70% attained scores above 75% in WYD mean score.

A multilevel regression model was fitted with the students as level one and the TVET institutions as level two. The objective of the regression analysis was to explore the student and institutional level-factors associated with whole youth development (WYD). A multilevel regression model was chosen as it allows the study of effects that vary by TVET institutions (groups). In the model, we controlled for institutional category among other variables listed in the first column of Table 5.1. National polytechnics and TTIs were combined as one category due to the low number of NPs, while the VTCs provided the other category. In our case, the group refers to an institution and not the category. The model was significant at 1% level (p-value <0.001), meaning that the independent variables that were explored (added into the model) had a meaningful effect on the estimation of WYD score. The intra-class correlation (ICC), which is a measure of similarity within a group, was 0.042 [95% CI; 0.025, 0.069] (confidence interval (CI) has been described further in the next paragraph). A low ICC value such as this indicates dissimilarity of values within the same group/institution. Very low ICC however is not advisable and hence the larger the ICC the better for a multilevel model. In total, the model had 2,850 observations and 150 groups.

In our model, the variable whose relationship with other variables we seek to understand is the overall WYD score – this is reported as the dependent variable. Regression results are portrayed in Table 5.1 which has five columns. The first column describes the names of all the variables included in the regression model. *Ref.* refers to reference category among categorical variables, which depicts the reference variable whose average score is compared to the rest of the categories (for instance in the variable sex of the student, the reference category is male and

hence its average WYD score is compared with that of the female assuming the rest of the factors (variables) are constant). The second column reports the coefficients for the association or the measure of WYD score and the variables (known as independent variables) included in the model. The coefficients for a continuous independent variable such as student's age in years indicate the amount of change expected in WYD score if the variable (age) is increased by a year (by one unit). A case of a categorical variable such as sex of the student indicates how male and female average WYD scores compare. In the third column, the table reports standard errors that indicate variability of each of coefficients described under column two.

We use the standard error to determine the amount of accuracy (precision) of the estimated coefficients. The smaller the standard error, the more accurate the estimate while the larger the standard error the less accurate the estimate. P-values are reported in the fourth column and show the values (known as probability values) that help us determine if an independent variable's effect on WYD score is significant (meaningful) or not. Smaller values (≤0.05) indicate that an independent variable's effect on WYD score is meaningful. The last column shows the confidence interval, that is the range of values within which the true value of coefficient (second column) is likely to fall with 95% certainty.

There were a total of 17 independent variables and a single-variable random-effects specification (TVET institution). From Table 5.1, five of the 17 variables indicated significance results at 1% or 5% levels – sex of the student, student age, TVET category, how well the institution was equipped, and the county in which the institution was located. Age of the student indicated varying performance where, after holding other factors constant, a unit increase in the age of a student leads to an increase of the WYD score by about 0.5%. The female students' performance was lower than that of the male students by about 2%. VTC students coming from the bottom SES quartile performed about 2.6% worse than those

either in NPs or TTIs who were also from the bottom quartile. Students from VTCs whose background was in the top SES quartile did not show significant difference compared to the students from NPs or TTIs from the bottom SES quartile, though this could be as a result of the smaller sample of VTC students in the top quartile.

Students from institutions that are inadequately equipped, on average, performed poorer than those from well-equipped institutions, by about 3.2 percentage points. On average, performance by students from Garissa county was poorer compared to those from the other seven counties by between 4% and 7.4%. Garissa was the reference category and had the lowest mean WYD scores. Turkana county students' performance on WYD was higher than that of Garissa county by about 4.7%, a difference which was not significant. Level two variables seem to be driving the acquisition of WYD skills in TVET institutions. In particular, the environment where the institution is located (county) correlates with the students' WYD score. Low WYD was evidenced in counties from the so-called hardship environments such as arid/semi-arid counties of Garissa and Turkana, or with high poverty levels, like Kakamega (poverty index of 53%, which was only second to Turkana at 94.3%).

The adequacy of equipment is to some extent related to category though we found these two variables have independent and significant correlation with WYD. In the case of equipment, this could mean that there are more opportunities available for imparting WYD skills in well-equipped institutions, perhaps because of the motivating environment that is created by the equipment availability. In the case of the TVET category, it could be a reflection of academic entry behavior of the student and the WYD learning opportunities that this creates within the institution. Overall, since one cannot vary the level one variables that were significant, especially the student sex, it is imperative that interventions to improve WYD in TVET should focus more on level two variables.

Table 5.2: WYD scores in multi-level regression model

Dependent variable=Overall WYD score	Coefficient	Standard Error	p-value (P>z)	[95% Confidence Interval]	
Student's age in years	0.467	0.089	0.000**	0.293	0.642
Student's sex *(ref. =male)*					
Female	-1.965	0.376	0.000**	-2.701	-1.229
Category#SES *(Interaction term, ref. =TTI & NP#bottom 25%)*					
TTI &NP#Middle50%	0.237	0.578	0.681	-0.895	1.370
TTI &NP#Top 25%	0.024	0.817	0.976	-1.577	1.626
VTC#Bottom 25%	-2.577	0.981	0.009**	-4.499	-0.655
VTC#Middle 50%	-1.519	0.964	0.115	-3.409	0.370
VTC#Top 25%	-4.216	3.100	0.174	-10.292	1.859
TVET Type *(ref.= Private)*					
Public	1.171	0.731	0.109	-0.262	2.604
Student's study level *(ref.= beginner)*					
Finalist	-0.264	0.357	0.458	-0.963	0.434
TVET Location *(ref.= within or near a big city)*					
Within or near a small town/shopping center	-0.389	0.686	0.571	-1.734	0.957
In a rural or remote area	-1.825	1.066	0.087	-3.914	0.264
Area student was brought up *(ref. =rural setting)*					
In an urban setting	-0.498	0.438	0.255	-1.356	0.360
In a peri-urban setting	0.009	0.567	0.987	-1.102	1.120
Instructor's status of employment	0.238	0.658	0.717	-1.051	1.527
Instructor's highest level of education	0.687	0.567	0.226	-0.425	1.799
Instructor's refresher training	0.939	0.643	0.144	-0.321	2.200
TVET head's highest level of education *(ref.=no college/university education)*					
College/TVET Education	0.570	1.615	0.724	-2.595	3.735
University Education	0.879	1.594	0.581	-2.244	4.003
Institutional head's status of employment *(ref.= permanent)*					
Contract/temporary	-0.789	0.614	0.199	-1.993	0.414
Management training in the last 3 years *(ref.= yes)*					
No	-0.619	0.548	0.259	-1.692	0.455
In-service training in the last 3 years *(ref.=yes)*					
No	0.249	0.529	0.637	-0.787	1.286
Question about how adequately institution is equipped *(ref.= adequately equipped)*					
Moderately equipped	-0.202	0.554	0.715	-1.289	0.885
Inadequately Equipped	-3.249	1.039	0.002**	-5.285	-1.213

Dependent variable=Overall WYD score	Coefficient	Standard Error	p-value (P>z)	[95% Confidence Interval]	
County (ref.= Garissa)					
Kisumu	4.002	2.037	0.049*	0.010	7.995
Meru	6.064	2.090	0.004*	1.968	10.161
Mombasa	5.668	1.880	0.003**	1.983	9.353
Nairobi	5.900	1.772	0.001**	2.427	9.373
Nyeri	6.264	2.003	0.002**	2.338	10.190
Turkana	4.728	2.431	0.052	-0.036	9.492
Uasin Gishu	7.362	1.873	0.000**	3.691	11.034
Kakamega	4.956	2.114	0.019*	0.813	9.099
_cons	63.740	3.363	0.000**	57.147	70.332

**significant at 1% level
*significant at 5% level
Mixed-effects Maximum Likelihood (ML) regression

Mixed-effects ML regression	Number of observations =	2,850
Group variable: tvetid	Number of groups =	154
	Observations per group:	
	Minimum =	2
	Average =	18.5
	Maximum =	21
	Wald Chi-square(31) =	172.21
Log likelihood = -10458.211	Prob > Chi-square =	0.000**

Random-effects Parameters	Estimate	Standard Error	[95% Confidence Interval]	
TVET Institution unique ID: Identity				
Variable (_constant)	3.804	1.014	2.257	6.413
Variable (Residual)	87.317	2.381	82.773	92.110
Likelihood ratio (LR) test vs. linear model: Chibar^2(01) = 28.91	Prob >= Chibar^2 = 0.0000			

Residual intra-class correlation

Level	ICC	Standard Error	[95% Confidence Interval]	
Groups (TVET Institutions)	0.042	0.0109	0.025	0.069

6   Participants' perceptions on skills and core-values

This chapter offers qualitative findings on the participants' perceptions on skills and core values.

6.1 Participants' awareness and perceptions of TVET policy frameworks

During qualitative interviews, respondents were asked whether they were aware, unaware or not sure of the existence of policy frameworks for WYD in TVETs. This is consistent with observations from school managers which showed high preference for some policy documents such as industrial attachment policies (92.9%), and low preference for others, such as child safeguarding policies (35.1%). Those aware advised that such frameworks were either spearheaded by institutions mandated to re/design the curriculum or partners from Non-Governmental Organisations (NGOs) and Civil Society Organisations (CSOs) working in Kenya's education sector. Some of the frameworks promoted exchange programs among institutions, partnership with other education stakeholders or government involvement. This speaks to the guiding principles of the country's TVET policy, which though in draft form, includes principles such as complementarity, collaborations and partnerships, information and communication sharing, lifelong learning, national integration, and inclusivity and respect . However, though some were aware of the existence of such frameworks, they had little or no concrete knowledge of what the framework highlights. Some participants elaborated on what they thought the frameworks entailed:

'…there is a TVET Draft Policy Framework and it outlines all information that pertains to the kind of training that TVET institutions should give to students. It encourages institutions to equip students with not only technical skills, but also employable skills like life skills, communication skills, innovativeness, and entrepreneurship skills that are all aimed at making youths passing through our institutions to be self-supporting or let me say wholly developed to fit well in society out there. The policy framework is in public domain and you can find it maybe in the Ministry's website' **[IDI-R5].**

'…there is a framework, though in draft called the TVET Policy Framework, about 40 pages or so. I think it contains government's requirements on soft-skills training in TVET institutions. I may not know all the soft skills contained in it (if any) but I know issues of integrity, leadership, ethical practice, and respect of human rights is contained in it. As for changes, so far I have not heard of any and the best placed institution to give you that information is Curriculum Development Assessment Certification Council CDACC' **[KII-R7].**

Others were aware of the existence of a framework, but were very vague on the details:

'I believe there is a framework though I am not very much familiar with it but I believe there must be a national policy framework on the area of soft skills' **[KII-R3].**

Others yet disputed the existence of such frameworks:

'As (of) now, for TVETs, there is no policy or framework but we want to develop our own as a county and we are just waiting for the Senate to pass the one that is ongoing now. When the Senate passes it, we will work on adding our own or customize it to have the framework on soft skills because it is something that we have wanted to do' **[KII-R5].**

Some pointed out that while there has not been a particular policy on WYD, there are recent efforts aimed at integrating WYD in TVET curriculum:

'No, currently there is no policy on WYD yet. But we have a framework which was launched on 24th October 2018. You came at the right time because competency-based education and training (CBET) framework was launched just last month and is being implemented' **[IDI-R3].**

The responses allude to a gap in the understanding of the TVET curriculum even among key persons deemed most knowledgeable in the same. While there is a faction that is well conversant with the skills, including their policy provisions, there seemed to be some who were not well informed on the policy requirements on skills and core values. It is possible that when policy stakeholders understand a given idea, that the policy together with its related legal frameworks, receives the will to drive its agenda. For this reason, there is need for further sensitization and government-led advocacy for the adoption of life skills and core values among policy stakeholders, if positive results are to be attained.

The role of non-state actors in the development of the skills was also evident. Non-Governmental Organisations (NGOs) play an important role in the development of WYD as they occasionally partner with state agencies at county and national levels to produce well-rounded youth with employable skills. NGOs working to promote education in the study areas were recognized for their roles in equipping the youth with much-needed skills including teamwork, conflict resolution and competitiveness. Such organisations, particularly those operating in volatile areas engage youth in improved conflict resolution mechanisms besides armed violence, thereby fostering peaceful coexistence. This is consistent with the work undertaken by African Development Bank Group to equip youths with life skills in crises contexts, fragile or conflict settings as well as countries recovering from post-conflict situations like Burkina Faso, Senegal, Togo, Mauritania, Cameroon and Madagascar (AfDB, 2016). Other organisations and researchers have also contributed to the continent's WYD in various ways, from capacity building to evaluation of WYD, with accompanying recommendations (The MasterCard Foundation, 2015; Fletcher, 2014; and USAID, 2013):

> '…we have partners working with both the national government and also with us the county government to offer the youths in TVET institutions wholesome education and training. Besides training students on technical skills, they also have and encourage competition and exchange programs within schools and between or among different institutions to help students learn and share with one another. They encourage teamwork and group work among students from different communities so that they can learn to learn in harmony with one another and avoid community conflicts common here. We have an organization called GIZ, which does this training' **[KII-R4].**

It also became apparent that with the devolved governance, institutions, particularly county-managed TVET institutions were keen to develop programs they considered relevant to their communities, which included soft skills. Some interviewees thought that while national education frameworks acted as guidelines (MoEST, 2014), county frameworks served to bridge salient national and local gaps. For instance, Kakamega and Uasin Gishu county governments have set up youth empowerment initiatives through promotion of sports and other talent harnessing programs. In Kakamega, the Bukhungu stadium is complete, with the youth expected to enhance their soccer skills, while in Uasin Gishu, Kipchoge Keino stadium has been improved by the county to harness youth talents in athletics (Kakamega County Integrated Development Plan, 2017; Uasin Gishu County Integrated Development Plan, 2018). Moreover, the two counties as well as Nairobi County are undertaking environmental conservation measures in their respective county integrated development plans, which is in line with the requirements of the revised TVET curriculum that emphasizes youth training on environmental awareness (Nairobi County Integrated Development Plan, 2018; TVETA, 2019). All these initiatives are set to equip the youth with self-employment skills as well as professional competition skills.

However, when asked about the existence of such county frameworks, respondents seemed unaware of them:

> *'Now that the counties have been devolved, education has also been somewhat devolved. This is because we now have County Ministers of Education who spearhead some of the educational frameworks you talk of. We have actually done a draft policy framework for the Vocational Training Centers. It is only waiting for the reading in the County Assembly so that it can be approved and becomes an act. Oh, yes, it talks of things like entrepreneurship, communication skills and public image etc.'* **[KII-R1].**

6.2 Participants' perceptions about the integration of WYD skills in TVET curriculum

Various countries perceive and contend that WYD is imperative for youth employment and overall improved youth employment, if their initiatives are anything to go by. In Rwanda for instance, a new curriculum, dubbed competence-based training (CBT), which was developed by Workforce Development Authority (in charge of TVET) and the Rwanda Education Board (for overall secondary education), advocates for inculcation of WYD skills among TVET students. Students are exposed to a modular system with 100-hours of training lasting between three weeks to three months. They are also exposed to opportunities for internships, entry job offers, entrepreneurship opportunities, apprenticeships, and other formal sector jobs to enable them to acquire WYD skills prior to and on-the-job.

In Kenya, a model by CAP-Youth Empowerment Institute (CAP-YEI) adopts the Basic Employability Skills Training (BEST) program approach, which has succeeded in Egypt, Tanzania, Sudan, and South Sudan (USAID, 2014; The MasterCard Foundation, 2017). In the Kenyan context, the program is designed to offer market-oriented entrepreneurship skills and training. The program offers out-of-school and out-of-work youth aged 18-25 years with a mix of business opportunities, training on transferable WYD skills, capacities required for starting own businesses and employment, and internship opportunities. Nigeria also adopted a competence-based education policy that equips the youth with practical life skills relevant for employment. The policy emphasizes infusion of entrepreneurial skills, transferable skills, life skills, and employability skills that meet 21st century needs (Orji, 2011; UN DESA, 2015; The MasterCard Foundation, 2017). The country has undertaken this through curriculum revision that incorporates the WYD skills in Nigeria's TVET education. It is evident from the three countries' examples that internships for youth graduates are important avenues for acquisition of transferable skills embodied in WYD. This confirms our study's findings that attachment opportunities are important in equipping the youth with WYD skills hence the well-grounded attachment policies in Kenya's TVET institutions.

Some participants in interviews and focus group discussions (IDIs, KIIs and FGDs) shared that though there were some soft skills integration in TVET institutions' curricula, it was not consistent and commensurate with the changing and dynamic labor demands. According to them, the soft skills integrated in their institutions' programs were not adequate in preparing them for both national and global labor demands. This is in contravention of the comprehensive integration requirements that should meet the demands of the students and the requirements of the state which is a beneficiary of graduates' skills . Quantitative results showed that about two-thirds (66.9%) of the students were satisfied with the knowledge and skills they received from TVET institutions and believed this could help them get jobs. However, only about a third (34.8%) had faith in training equipment, materials and machineries.

This means that an integrated curriculum should allow teachers to prepare students for the current and coming century labor demands. To address this, the government, introduced bridging curricula measures, including competency-based education and training (CBET), and National Vocational Certificate in Education and Training (NAVCET). Participants provided some details about these measures:

'We have a new curriculum for TVET institutions and I believe this will be scaled to other levels of colleges. The curriculum I talk about is called Competency-Based Education and Training (CBET). We also have National Vocational Certificate Education and Training (NAVCET). They all have components of soft skills like life skills, communication skills and entrepreneurship skills among others so we seek to develop learners in wholesomeness' **[IDI-R4].**

'Curriculum Development Assessment and Certification Council (CDACC) have come up with a competency-based curriculum called the competency-based education and training (CBET), which requires that once students have undergone the course, he or she can demonstrate good working behaviors that they have learned from schools besides the technical or career skills they pursue in our institutions. For instance, assume a student pursues a hairdressing course and then end up working in a salon, apart from how to make hair or make things, we want to teach them how to deal with their clients and how to advertise their services and attract and eventually retain clients. If you have seen the marketing they do on Facebook, WhatsApp, yeah, those are the things we look at training them more on in the CBET' **[IDI-R2].**

The CBET and NAVCET initiatives are consistent with the industry needs to equip youth with employability skills (Robles, 2012), that will not only enable them to diligently undertake tasks but also help them in their daily interactions with the community and environment. A similar initiative is currently being rolled out in Ghana's TVET system (Ansah & Ernest, 2013; Baah-Boateng & Baffour-Awuah, 2015), as well as in Egypt (German-Arab Trade, 2017) to enable the youth in the two countries acquire employability skills, implying that curriculum re/design is necessary for instilling WYD skills on TVET students. The Kenyan Government having recognized the important role played by WYD in societal well-being, has incorporated basic skills in the TVET curriculum (Ministry of Education, 2018)

Another respondent spoke of the focus on information technology in WYD approaches to encourage innovation:

'And whenever grants are given to our institutions, a certain percentage has been given out for automation and that automation consists of the soft skills that we are talking about. That we go towards attaining automation as much as possible and besides the internal mechanisms that have been put in place in a bid to computerize everything that we do' **[KII-R6].**

Student attachments or internships are another component of the TVET curricula that is recommended, used and deemed appropriate in developing and integrating WYD among youths in Kenya. Data from students showed that about half (50.3%) believed that the institutions did not have internship programs. This is despite existing proof that internships, apprenticeship and attachments play an important role in equipping the youth with employability skills (Musset, 2013; Field, Musset, Álvarez-Galván, 2014).

Students in TVETs in their final year are required to go for industrial attachment before graduation to give them hands-on work experience in preparation for the world of work after graduation:

> '…for the government, it is recommended in the curriculum that these students must go through industrial attachments so that is that. Another recommendation to institutions is that the institutions work on encouraging students to find better ways of improving their attitudes and have positive ones [attitudes], including their behaviors. So they have to come up with better ways of training their trainees' *[IDI-R3]*.

Additionally, it is plausible that some of the courses offered in TVET institutions are inherently aligned with some of the soft skills, which means that during training of such programs/courses, instructors will inevitably cover some of the skills. A good example is the interpersonal relationship skills picked up when students pursuing Public Relations (PR) courses are taught how to professionally interact with clients. A student put this in perspective by sharing how the curriculum incorporates soft skills training:

> '*I can say some subjects like mine, which is Public Relations (PR), we are taught how to talk and relate with clients, customers and even colleagues so yeah, it integrates soft skills in the training and so I can back the curriculum in that line. You see, I will be able to relate within an organization as a PR consultant or as a PR Manager, and the course is also examined internally and externally with Kenya National Examinations Council (KNEC)*' *[FGD12-P8]*.

Some of the government's WYD initiatives are in the early stages of implementation therefore their long-term effects have not yet been measured. This is particularly true for CBET and NAVCET interventions:

> '…we are still at the introduction level as an authority. We are told that the curriculum developer who develops a curriculum that integrates soft skills will also be able to come up with training manuals to guide the trainers in training some of those soft skills' *[IDI-R4]*.

> The fact that CBET and NAVCET initiatives are in their infant stages may mean that the government is keen on the contributions of the WYD to overall youth employability. It however, remains to be seen whether incorporation of the basic competencies in the TVET curriculum will translate to better WYD among youth and improved youth employability.

6.3   Participants' perceptions on youth and their WYD skills

Most interview participants – both youth and policy-making respondents – thought that many students exhibit WYD skills. This is corroborated by quantitative results which showed above average performance in most WYD skills – intrapersonal skills (83.8%), leadership skills (80.7%), interpersonal skills (75.4%) and resourcefulness (72.6%). The participants maintained that their stay at respective institutions as well as interaction with colleagues positively impacted their soft skills. In describing themselves or schoolmates, respondents highlighted having skills like entrepreneurship, leadership, respect, caring, teamwork, hard work, confidence and courage, a sense of responsibility and supportiveness, all of which they attributed to their TVET training:

> '*Many students in this institution exhibit entrepreneurial skills. For example, after classes, you will find many students selling sweets, others selling shoes, and other things, you see somebody selling ice-cream in our school, because in life everybody is looking for something to put in their mouth. This is what we call borrowing from class lessons and experience*' *[FGD1-P6]*.

> '*To me the first skills that I possess is the leadership skill, followed by self-interrelationship skills. I really like socializing, and that is one of my best attributes. Also, when I walk around this school I find that most of the people in this institution like and enjoy interacting with each other. They don't base it on gender or any other biases, everybody is just the same*' **[FGD3-P7].**

The responses above show that students are well conversant with WYD skills and can easily identify when they or their peers possess such skills. It is also striking that students attribute possession of the skills with improved individual socio-emotional skills as the skills enable them either to receive favorable perceptions among peers or advance in a particular field/sphere like leadership and business management among other areas. This contributes to existing evidence which maintains that strong socio-emotional intelligence is a precursor of good leadership and management at any level (Riggio & Reichard, 2008; Batool, 2013)

6.4   Capacities within TVET and production of WYD skills

Quantitative data from instructors showed that over 90% perceived themselves as well equipped to teach the technical courses they are assigned to teach. However, in terms of their preparedness to teach various aspects of WYD, the proportions are relatively low – life skills 60.8%, academic skills 57.7%, core values 57.2% and social-emotional skills 50.0%. Policy makers and key informants thought that the existing TVET curriculum is what has contributed to the inadequate training capacity levels in the institutions. Many interviewees (from IDIs and KIIs) thought the lack of detail in the curriculum about WYD skills meant that they were often not included in the programme of learning – instead, they thought that the curriculum emphasised the teaching of technical skills.

Moreover, some respondents shared that a general lack of understanding of the value of WYD contributes to the low prioritization of these skills. The responses below offer insight on this issue:

> '*The general attitude is that most institutions have not yet understood the core values and importance of the soft skills and values training…so this has affected the capacities of producing core values among students*' **[IDI-R4].**

A lack of appreciation or enthusiasm for WYD skills among instructors was also seen as a contributor:

> '*…and that is why even when you visit them [institutions], you will find that soft skills or even those core values are timetabled to come [as the] last lesson of the day or at best in the afternoon when there are market days in the village. The lecturer would then skip the lesson so there is a struggle in understanding the core values, life skills and soft skills*' **[IDI-R4].**

Others thought some societal values were to blame:

> '*…concerning core values, let me refer to the issue of integrity and accountability. We as a country score very poorly on that. You see how our youths are obsessed with getting rich quickly regardless of the means of acquiring them. I cannot entirely blame them as some of these vices are acquired from national leaders whom they look up to. The get rich quickly mentality is what has made most young people to be obsessed with betting/gambling at the expense of doing gainful innovative things. Youths are becoming lazier, especially young men*' **[KII-R8].**

For youth to acquire effective WYD skills, there must be effective complementing capacities in TVET institutions, meaning that instructors must acquire relevant and market aligned WYD skills. In light of this, instructors should go through regular and sustained in-service training to enable them to acquire relevant skills which they can instil in their students. In-service training has been shown to be important in imparting instructors with comprehensive skills, including WYD, as evidenced by adoption among TVET institutions in countries like Indonesia, Laos, and Vietnam (Paryono, 2015). Other countries where the same approach has been adopted include Greece (Paleocrassas, Tsiantis, & Dimitropoulos, 2009), and India (Sarwar & Ahmed, 2017). This is similar to the findings of this study which confirmed that Kenyan TVET instructors usually undergo in-service training organized by institutions themselves as well as by respective county governments' executive committees of education.

6.5 The key influencers of WYD skills in TVET in Kenya

Perhaps pointing to their level of awareness on soft skills, students who took part in this study stated that the desire for acceptance among their peers or wider community is the key influencer for WYD, meaning that social correctness is a key determinant in WYD skills' acquisition. This is consistent with the Malaysian leadership study's findings '', that confirmed youth leadership development and participation must take into account their social and political bearing as they both have positive effects on youth leadership development. On the social aspect, the study maintained that usage of social media had a significant effect on youth leadership development hence the need to invest in social media capital development. The respondents identified a number of social soft skills and highlighted their importance in influencing uptake by students of WYD in TVETs as related to their spheres. They attributed soft skills as key for maintaining good working relationships and problem-solving skills. They also thought that having soft skills supported greater social well-being, including self-awareness:

'*Possessing soft skills is important because, one, it makes you marketable and you can easily identify your weaknesses and a gap that you yourself can fill. Two, in relation with the first one, this digital era of digital literacy with internet and everything, it offers people with ideas and opportunities to address your weaknesses. You see, you can work from home and still get an upkeep for yourself. You don't really have to look for employment like during our time when we were being encouraged to read and blue-collar jobs or white-collar jobs'* [IDI-R2].

'*I can say the concept of teamwork is very important because it really helps me because the moment, like when we were in high school, it was about competing with others, and to get higher grades than them. But the moment we came here, we realized that it's a matter of everyone passing so that everyone can get a job. So, here we usually have teamwork like group discussions'* **[FGD6-P8].**

'*It is important because if you relate well here with others the same way you relate with your colleagues, you will know how to avoid conflicts. For example, some of us here you know we are different people, people who have tempers, so we are not the same on how we handle those who criticise us, so when you have good soft skills, you will be able to know when and how to talk to manage negative emotions from other people. That way you solve conflicts softly'* **[FGD9-P1].**

> '...maybe for some of the politicians who want to be our leaders tomorrow, they need an important soft skill of hard work for him/her to be a leader tomorrow for him/her to be able to combine all communities in all the counties...' *[FGD10-P2].*

Other students linked soft skills to religious principles:

> 'It is important because with those skills, you are going to live according to God's will because you are relating with others in harmony and there will be no conflict so you are living a simple life and a good life as well' *[FGD12-P4].*

Others cited passion, morality, the need for emotional management (stress management), and awareness of others in one's environment as key influencers of WYD in TVETs in Kenya:

> 'I think it is passion to like what you are doing. Most students do not like the things or courses they do here but they just do them because their parents or friends told them to do. They do not passion for the things they do. The same apply for trainers or institutions, so institutions or trainers who have passion for training or equipping students in TVETs with soft skills will influence such training for the positive or for the negative. So it is all about passion of stakeholders; students/youths, trainers, and institutions or let me say curriculum' *[FGD8-P4].*
>
> 'I can say it is morality or the need for morality or moral uprightness. You see, there are so many youths who engage in so many immoral activities like prostitutions, lesbianism, and gayism and this is making many youths to lose direction so I would love it if youths embraced morality and this is what most trainers are saying when they teach us soft skills in entrepreneurship and communications skills and even during guidance and counselling' *[FGD4-P3].*
>
> 'The need to teach or train youths on how to manage their stresses is a key influencer of soft skills training in TVETs. Students in TVETs like in many other colleges have poor stress management styles. Some will go to drinking to manage stress, others will engage in other immoral activities like prostitution to manage their stress, and such stresses are mainly those caused by lack of money so I think teaching on stress management will help most of them so the need to help our youth for the basis and motivation for training them on soft skills' *[KII-R3].*
>
> 'I think understanding of each other. It is great for us to understand each other because some of us might be going through some challenges that force us to do or behave in certain way, not because you like it but because of the situation you are in' *[FGD12-P7].*

The evidence cited above argues for the 'what' influence, whereby respondents largely captured what motivates them to improve WYD. It is clear that religion and moral correctness among other drivers were salient push factors for WYD among youth in TVET institutions.

On the 'who' influences, it emerged that individuals or offices in TVET institutions holding and wielding influential positions have the ability to shape discourse and move levers in the TVET system. These positions and offices are therefore critical in buying into the WYD idea and championing the same for its comprehensive inclusion in the TVET curriculum. Where buy-in has not been created among such positions and offices, there is need for the urgent dissemination of WYD findings to enable speedy uptake and inclusion of WYD in TVET institutions and beyond. For effective uptake of WYD, it is essential for the top decision-makers to be fully informed about WYD, and this resonates with the perspectives of policy makers who took part in the study's data validation:

> '..various offices in the TVET space are the ones that can be great influencers in the adoption of WYD skills...they make or help such decisions so the office and individuals in those offices influence...yeah, CDACC, TVETA, KICD office holders' *[IDI-R6].*

6.6 Other qualitative findings on WYD

Other key qualitative findings from the study revolved around sources of learning soft skills, understanding on relevance of soft skills, role of learners' courses in the development of soft skills, constraints and resources available for soft skills training, adequacy and relevance of resources for soft skills training, and government's policy on assessment of soft skills among others.

Where to learn WYD skills

Students in focus group discussions shared that they had several sources for acquiring soft skills. These included: family or home, friends, mentors, social media, television and radio, extra-curricular activities, self-taught or innate, and college training. Most shared that they acquired the skills through social interactions rather than through education institutions. The respondents also seemed to recognize communication and/or interaction with others as a soft skill, which is a component of WYD:

> *'We learn them [soft skills] from our interaction with friends and even in sporting events. For example, you will find some friends with very strong communication skills and they will convince you to do even the things [good or bad] you never thought you would do. So, when you interact with such friends or family members, you develop such soft skills slowly by slowly'* **[FGD8-P8].**

> Another shared how competitive interaction such as debates help build soft skills:
> *'We learn soft skills from debates and science competition events because you will have to present your idea to people who sit to judge your idea and if you have strong convincing power, you will win. So, in debates and presentation places, are where we learn how to be confident in talking to others'* **[FGD8-P4].**

Existing evidence indicates that places of employment are the ideal locations where the youth are able to acquire the necessary employability skills. This is because while in employment, the youth are not only able to interact with technical expertise, but also able to blend both expertise and teamwork among other WYD skills at the workplace (Pratt, & Ellis, 2014; Reimers, 2016; Soares, 2017). In our study, respondents did not appear to directly position schools/colleges as centers of soft skills training, even among those who mentioned schools or colleges, but rather acted as a conduit for social interactions:

> *'…we acquire the skills in school because this is where you meet different communities, different characters of people, you intermingle and you know more about the community, you get a different skill from the school communities. So I think the best place to learn soft skills is the school'* **[FGD7-P9].**

Some students also mentioned information and communication technologies (ICT) as a common source of developing soft skills as seen in the quote below:

> *'We learn them [soft skills] from TVs, radios, and social media. For example, when we see other people act well and communicate well in TVs, movies and other social media, you admire them and want to act like they do, because you admire some of them,…let's say James Bond, you will want to behave like him and develop some of the soft skills he has like confidence when talking to an enemy'* **[FGD2-P6].**

It is for this reason that a number of county governments, having realised the potential of ICT in empowering the youth with information and skills for formal and self-employment, have incorporated ICT training in their development plans with some already setting up youth ICT centers in their jurisdictions (Kakamega County Integrated Development Plan, 2017; Uasin Gishu County Integrated Development Plan, 2018; Nairobi City County Integrated Development Plan, 2018).

Respondents' suggested a preference for unstructured sources in skills development rather than formal training structures:

> *'My friend here mentioned entrepreneurship as a soft skill, from that skill, we can learn it from entrepreneurs, those who have already started business and succeeded in it and so you want to be like them'* **[FGD14-P8].**

The TVET study reveals that students are taught soft skills during their first year but they (students) only learn such skills for the purpose of passing their national examinations, not to retain the information for use/application in later stage. This finding corroborates an earlier study's findings which argued that, the notion that education is the only gate pass to future career success has made students to study hard not for the sake of knowledge acquisition but merely to pass exams (Henry, Nyaga, & Oundo, 2014).

> *'We are taught communication skills and a bit of entrepreneurship skills in first year and it is examinable by the Kenya National Examinations Council, and then it ends there. We are never taught again and so most of us, let me speak for myself, I have forgotten things taught then. We only read it to pass exams but when I want it for practice, I use external learning sources like mentors, public speakers, and social media'* **[FGD10-P4].**

From the above response, it emerges that aspects of WYD such as communication and entrepreneurship skills are taught early in the beginning of a course. This is perhaps because they are deemed essential for employment, both in the formal and informal sectors. Moreover, communication and entrepreneurship skills are perceived to equip the youth with business and marketing skills, which enable them to engage in self-employment and thereby reduce youth unemployment. Unfortunately, students pay attention to these skills only in the initial years of their study when such courses are offered, yet they are critical during their training and post-training periods.

> *'…in communication skills, we are taught many areas that helps when you are employed like interactions, posture, body language, and presentations skills in board rooms…even entrepreneurship is taught because they want us to use the skills start our own businesses so we can be self-employed'* **[FGD5-R2].**

Understanding the relevance of soft skills
Key TVET stakeholders interviewed agree that soft skills are relevant, both for the individual's social development and economic/career development. Evidence backs the argument that possession and exhibition of soft skills predisposes an individual to employment and increases the likelihood of career progression (Shams, 2007; Ibrahim, Boerhannoeddin, & Kayode, 2017), though some studies find no significant effect on possession of the skills with securing employment or career change/progression (Groh, 2016). In our study, TVET stakeholders viewed soft skills as leverage points for success during tough social situations or tough socio-economic times:

> *'My friend, the soft skills you are talking about are very relevant for the current job market. In fact, while much of them [soft skills] are not included in the curriculum, we purpose to train our students [in] some of the soft skills like relationship skills, teamwork, time management, and be out-going, though clandestinely, to enable them [learners] stand-out from the rest.* The respondent went ahead to add that, *'We also do this because there are so many colleges out there offering the same skills as our own, so to out-do them, we have to do things differently and this includes spicing our courses by adding a little bit of soft-skills'* **[IDI-R5].**

'I believe that they [soft skills] are very relevant in that for you to work well in the job market, for example, sometimes people judge your business with your personality and if you have very good business and you don't have the right relations with people, you will not get the right customers for your product. The respondent maintained further that, 'if you have the right skills [technical] but you don't have things like how to interact with people and in making sound judgement, then you will not exploit your full potential' [KII-R3].

A salient revelation of the study is that respondents at the policy making level converge on the view that soft skills are essential in the development and maintenance of relationships in one's environment, both with peers and superiors:

'These skills are very essential out there in your interaction with others, work with others, and with others who work for you. For instance, you will have bosses, probably you will supervise others. So I believe the skills will help the trainees to make some of the most important decisions in their lives' [KII-R3].

The role TVET training courses have on soft skills development
The TVET students' views diverged on the role of training courses in shaping soft skills. While some attributed their improved soft skills to specific training embedded in the curriculum, others attributed it to the level of difficulty of their courses. The excerpts below highlight the first perspective:

'I am taking Social Work and Community Development. I think this course help me because in my units, I also have Communication Skills course, and that helps me when I go to an interview on how to conduct myself in sitting posture, facial expression and how to answer questions' [FGD15-P6].
'I am taking Human Resources and Management (HRM). The skills acquired from this course has helped me on how to have and maintain a position of power. I know how to relate with employees and things to do like keeping employee information and issues confidential. I have also learnt how to give directives to employees with respect like a manager and a leader. So, you see, it has trained me on leadership and management skills [FGD13-P4].

Some students talked about the relationship between their course workload or level of complexity, and the development of soft skills:

'I can say that studying Mechanical Engineering in particular, has increased my level of discipline. You realize that if you are someone who is a drunkard like since your high school, once you get here and start doing mechanical engineering, all of a sudden you find that there is so much work in this course, so there is no way you will go to get drunk knowing that tomorrow you have piles of work waiting for you. Take a course like Human Resource, it doesn't have many units like ours, so, this course has helped me to be disciplined' [FDG6-P7].

'This course has really helped me in my time management unlike in high school, where I knew that there is a bell that will ring at a particular time to tell you that a lesson is over or something like that, and also another one to tell you it is lunch time. In short, the bell is what is telling you what to do. But here, there is no bell and you have to manage your time on your own. The units/subjects that we are taking are many and one must read, so we must manage our time and know that you need to have your own drive and utilize your time well'. [FGD6-P8].

'I can say Mechanical Engineering has taught me how to work in a team so that I can be effective in avoiding conflicts or solving conflicts with other people. And…this is because when I go to attachments you will find people there who are skilled and others are not, and if you don't know how to relate with them, you will be finding yourself in conflict. So if you got these skills you will be knowing how to avoid these conflicts and how to tackle them when they come' [FGD2-P2].

Resources and constraints for soft skills training

Interviews with TVET policymakers and technical personnel shed further light on resource requirements for soft skills training in TVET institutions. Information provided revolved around the status of human capital, financial capital and infrastructure and/or material endowments, with inadequate resource endowments noted as negatively affecting the effective inculcation of WYD skills among TVET students. This is also reflected in the study's quantitative results where the multilevel regression results showed that the environment where the institution is located (county) correlates with the students' WYD score. Low WYD skills were evidenced in counties with environments that could be described as hardship, for whatever reason such as arid/semi-arid areas like Garissa and Turkana, or with high poverty levels like Kakamega. Moreover, it is evident from the results that the adequacy of equipment is to some extent associated with TVET category though we found these two variables have independent and significant correlations with WYD. In the case of equipment, this could mean that there are more opportunities to impart WYD skills in well-equipped institutions, perhaps because of the motivating environment that is created by the equipment availability. This echoes past work (Rachel et al., 2016) which focused on vocational education in Kenya that highlighted issues to do with physical access, cost implications, and infrastructural conditions of vocational institutions. Similarly, this position is held by related work in Kenya that called for material and resource (curriculum, human and capital) development of TVET institutions. The interviewees thought that while there is significant progress in terms of the will to improve particularly with regards to the curriculum, there were still resource gaps that hinder effective and efficient training of soft skills in TVET institutions.

> '…the TVET curriculum is not very elaborate on soft skills because it is offered mainly as support courses and not really emphasised so if emphasis could be high like for other technical courses, it will help. Besides, teachers are not adequately trained on soft [skills] even when soft skills are included' *[KII-R4]*

However, some TVET institutions have made significant efforts to provide requisite training materials and infrastructure:

> 'For soft skills training for ICT, most TVET institutions have laboratories that were computer labs. The same applies to business related courses and financial literacy because we have units like the production units where students are allowed to develop something and sell to fellow students.' The respondent further highlighted that: 'there are institutions that offer hospitality. They have their own catering units where they welcome both the students and outsiders to practice and showcase their talents, and this promotes competitiveness among learners' *[IDI-R2].*

With regards to human capital, feedback from the respondents shows that development of TVET staff members' capacity to align with the current labor requirements has been a challenge. This means that staff, particularly instructors cannot deliver quality training because they themselves lack the needed skills:

> 'In terms of human capital, the development of staff is a challenge. Technology is fast changing and those people who are vested upon the powers to train if they don't keep abreast with changing technology, they can fall off, and you will be surprised to find this is common in many institutions. So you find out that initially some of us graduate without even knowing about how to operate computers and you expect students to be taught computer skills'. The respondent added that, '…when it comes to delivering on ICT classes, you have to be a bit compliant to enable you dispense the same skills'. Moreover, 'another type of resource in terms of books are becoming obsolete very quickly but we have e-library, e-journals for the institutions and we are allowed to subscribe as long as it does not take much of institution's money, but where is the gap? The gap is few trainers having such needed skills' [IDI-R3].

The above sentiment about human capital was echoed by another TVET technical staff member:

> '…even the trainers who are currently handling the training of soft skills in the TVET institutions have not undergone any capacity building so it looks like the human resource that we have is not well prepared for the task. However, I am hesitant to say that in terms of communication skills we can adopt the content in certain programs which require communication skills as part of them' **[IDI-R4]**

The financial cost was also mentioned as a key barrier in relation to teaching soft skills to TVET students:

> 'They [soft skills] could be available but again the cost of transferring them to students is a challenge especially, when we are looking at the industry mentors, not unless in instances where they do it as a corporate social responsibility then we can be able to do it but it is also a challenge to attract those people. Besides, not all institutions have programs that have these sort of skills as their core courses. Soft skills are also not uniformly taught across in the country so accessing the syllabus for that would mean extra resources' **[IDI-R1].**

The responses in this section seem to highlight the view that an inadequate skillset among instructors which is compounded by the lack of in-service instructors' training on WYD is a major contributor to the insufficient development of WYD skills in TVET institutions.

The adequacy and relevance of training resources

There were mixed views in relation to the adequacy and relevance of soft skills training in TVET institutions. Some participants thought existing training resources were not adequate. This is consistent with the Institute of Economic Affair's (2017) study findings on six TVET institutions in two counties (Nakuru and Kajiado) in Kenya. The study found that majority of respondents attending Kware Kapkwen (96%) and Ronga (93%) Polytechnics in Nakuru and Kajiado respectively were dissatisfied with the resource levels in their institutions. They maintained that the institutions did not have adequate workshops and classrooms for learning. Respondents in two institutions (Nakuru and Njoro polytechnics) were 68% and 69% respectively dissatisfied with the adequacy levels and kinds of resources available for learning in their institutions. Only two – Molo and Barut polytechnics – had favourable levels of dissatisfaction (49%), though this is still significantly high. This negates the provision in Section 8 of the TVET regulations (Government of Kenya, 2015) which states that, "an institution shall provide adequately equipped workshops or laboratories, where these are required by the curriculum offered, and where the institution offers courses regulated by professional bodies". In the current TVET study, similar inadequacy of resources was observed. The following excerpt supports this:

> 'There is no standard that we are aware of that I can use to judge and conclude that what we have is relevant. However, what we have I believe is relevant because it is actually helping the trainees achieve these life skills but I don't think they are adequate' **[KII-R3].**

> 'There are books everywhere, and every TVET institution has a library where students can get resources needed to sharpen their skills. However, such materials are in limited supply [for]t the number of students that some of our institutions host' **[KII-R8].**

> 'They are relevant but slightly inadequate. Inadequacy comes in because we have the existing same number of colleges (TVET institutions) that were there. They require more resources like teachers and books as we get more students. We have motivated the students to come and train and we have even removed/reduced the year and grade when someone qualified from form four. Anyone can come even today. So, now to work well, we require more. We have to increase the resources that is why they become inadequate. Plus other physical facilities in the institutions' **[KII-R6].**

A key stakeholder thought the same:

> '*On adequacy, no. They are not adequate at all. On relevance, I cannot tell because I have not gone through deeper details of reading them (if they exist) to make a conclusion. To add on adequacy, there are more students in TVETs, and many more are still joining beyond the capacity of TVETs. Facilities also remain for long time despite the growing number of students. There is need for more funding to address the issue of adequacy*' **[KII-R1].**

Participants shared their thoughts about why soft skills development is not a big focus for training in TVET:

> '*…I know there are books there that students who are outgoing can interact with to improve their soft skills. For TVETs or those resources develop by TVET, I do not think they are there*'. The respondent added that, '*you see, like the name suggests, they are TVETs, meaning technical so more emphasis is on technical aspect and so it is understandable if soft skills are not covered…that does not mean soft skills are irrelevant here*' **[KII-R7].**

Government policy on assessment of soft skills

Interviews with key stakeholders about the government's position on the status of soft skills development in TVETs highlighted that not all of them were aware of the government's programs in assessing soft skills within these institutions. Some of the key stakeholders who were aware of government interventions in the space shared on the deliberate effort to promote WYD:

> '*Assessments seems to be having a paradigm shift from what we used to call supply driven to curriculum driven. Our main concern is on competencies and here the competencies we are talking about include the knowledge and also the attitude. You see, as I said, our main concern is a wholesome person, a person who will be able to work, not just producing like a machine but also able to contribute to other social welfares of the organisation employing him/her like in presenting, let us say, in seminars and other events. That means one of the current government policies is competency-based education and training and this takes care of soft skills.*' **[IDI-R3].**

The above respondent's point resonates with the Kenyan Government's policy and/or call for development of a curriculum that embodies WYD and provides guidelines for the assessment of overall youth development (GoK, 2012a). Specifically, the policy advocates for the development of entrepreneurial skills and competencies as well as technical skills. It further emphasises the need to equip learners with appropriate competencies and values, knowledge, and skills to enable learners to achieve their full potential, make well-informed life-long decisions, as well as improve the quality of their lives.

The shift in government efforts was echoed by another key stakeholder (TVET policy-making officer):

> '*We roll out the competency-based education and training (CBET) programs and what will happen as part of continuous assessment is that we would be able to assess these common units and basic units which have soft skills components.*'**[IDI-R4]**

However, some key stakeholders were aware of government policy but were vague on the detail:

> '*I know of existence of a number of policies but I don't know the details of the position on soft skills. They include: Education and Training Sector Gender Policy 2015; Education Policies on Trainees and Learners with Disabilities; and Implementation Guidelines – Sector Policy for Learners with Disabilities. From my point of view, assessment of soft skills is more or less non-existent, and if it were there, I haven't heard of it*' **[KII-R7].**

During the interviews, it also became apparent that participants were more knowledgeable about what was happening at the county level than at the national level:

> '*Well, I am not aware of a national government policy that concerns assessment of specifically these soft skills although there could be. But what I can tell you at county level we have not yet developed such a policy. But going forward in my opinion I think it is something that is important and required so we are going to work on it. But currently, we are not aware of such from national government*' **[KII-R3].**

This could be attributed to the fact that county government officials interact with policy making processes more often and hence are more aware of what could be going on.

7 Conclusions and implications

7.1 Conclusions

Equipping youth with skills and knowledge that promote Whole Youth Development (WYD) is critical for their success in the labor market and in other private and social spheres. TVETs, which play the role of preparing young people to transition into the labor market, are well-positioned to promote WYD. With over half-a-million young people joining the labor market annually in Kenya, the need for WYD in TVET is crucial. This APHRC TVET study sought to explore the production of WYD skills and core values in TVET institutions in Kenya. These included academic skills, life skills, core skills, and social-emotional skills. The study surveyed and interviewed students in TVET institutions, instructors, institutional heads, TVET policy makers and other senior technical personnel. This study concludes by providing the following action points to key TVET stakeholders.

TVETA and NITA to integrate TVET policy frameworks and WYD in youth training policies: TVET institutions follow policy guidelines provided by relevant ministries and government agencies. The study highlights that career guidance policies were well-established in TVET institutions to guide students' career plans. However, policies on sexual harassment, community service, and safeguarding were less well-integrated within the institutions, even though these policies play key roles in improving youth-community relationships and well-being for WYD.

CDACC and KICD to integrate WYD in the TVET curricula: Institutions that promoted WYD generally focused on three types of

skills: learning to learn, developing relational skills and time management. In this regard, students were provided with opportunities to practice skills acquired in school at the workplace through attachments. They also learned to be aware of self and others, and to work on time-bound tasks like exams and assignments. There were fewer opportunities to complete community services, participate in debates and presentations to sharpen communication skills, or to review other students' work, which can improve critical and creative thinking skills. While there are good efforts in promoting WYD, including the positive steps being undertaken by the government to review the curriculum, these activities have not been fully explored to reflect the changing and dynamic labor market.

Instructor trainers to improve the capacities within TVET for the production of core values and capabilities: On average, a vast majority of the instructors (over 90%) felt that they were well equipped in terms of expertise to run the main courses they teach, especially in technical skills. Those in NP felt better equipped than their peers in TTI and/or VTC. Overall, the level of training in WYD skills among instructors was highest for life skills (60.8%), followed by academic skills (57.7%), then core values (57.2%) and lowest for social-emotional skills (50.0%). There was not much difference in these levels of training among male and female instructors, or among instructors in public and private institutions. In general, the levels of coverage for non-academic skills (e.g. relationships, sexual and reproduction health skills) were perceived to be lower than those for academic/technical skills. It also emerged that the TVET curriculum is not detailed enough in terms of WYD approaches which contributes to inadequate training capacities within these institutions.

Key influencers of WYD in TVET including TVETA, CDACC, NITA, KNEC, and KICD to strategize on resourcing of under-equipped TVET institutions: As far as key influencers of WYD are concerned, instructors generally held that student-specific factors such as gender and religious affiliation were not barriers to acquiring WYD. The key hindrances, especially in public institutions are the lack of resources including for example relevant machinery and materials, and state-of-the-art workshops and laboratories. National and county governments are however currently investing heavily in TVET institutions. While instructors were keen to point out that learner characteristics and facilities – resources like equipment for learning, workshops, classrooms and staffing – were key influencers for WYD, students were more concerned about acceptance among peers or wider community. Students were primarily motivated to acquire softs skills for WYD by the need to improve their acceptability among peers and community. Instructors were worried about resource scarcity while students were concerned about the negative consequences of not having the soft skills in question. The students held that soft skills were essential for relationship management and problem-solving, as well as for general social wellbeing and self-awareness.

TVET students to embrace WYD skills and see them as a strategy to enhance their transition to the labor market: Students' WYD capabilities were assessed through their perceptions, understanding, preferences and confidence in selected values and life skills. They were also assessed on their functional literacy, functional numeracy, and digital literacy. The students considered themselves dependable, loyal, open, and persistent. However, less than half considered themselves trustworthy. The students' digital literacy was much stronger than their functional literacy and numeracy skills. Male students, those in private institutions and national polytechnics, and students from better off households performed best on these literacy tasks when compared to

their counterparts. In terms of subgroup analysis, performance on the three skills (functional numeracy, literacy and digital learning) was generally better among male students, those attending private institutions (77%) or those in NPs (82%). Performance in life skills and social-emotional skills improved with level of the training course or program, and with improved household SES, where the least (69%) proportion of students correctly scoring all the items belonging to the bottom 25% of SES. This trend was also observed for functional literacy and functional numeracy skills, except that female students performed better than male students in life skills and social-emotional skills (77%). There was essentially no difference in the performance of first and final year students (74%), meaning that the TVET institutions had minimal to no impact.

What do we learn from these findings?
The TVET system in Kenya has undertaken commendable reforms as witnessed in the formation of various TVET agencies, which is a good step, although the emphasis remains on how to manage the TVET sub-sector. While these reforms provide a good opportunity to integrate WYD in TVET, they are not explicit on pathways through which core values and WYD should be integrated into the frameworks driving the National Vocational Certificate in Education and Training, Competency Based Education and Training, as well as the Curriculum Development Assessment and Certification. It is evident from the current study that Kenya's TVET system does not have a deliberate approach to the production of core values and WYD integration in its curriculum delivery despite their importance in preparing youth for the labor market. The inadequate specification, or lack of it, of how best core values and WYD approaches should be integrated in the curriculum delivery – perhaps with the exception of life-skills programming at institutional level – means that TVET institutions deliver their services purely based on academic and technical skills training goals.

The current study brings to the fore the missed opportunity for strong integration of core values and WYD approaches in TVET delivery frameworks which consequently limits the extent to which these institutions can meaningfully address young people's transition to the workplace. The absence of a comprehensive description of core values and WYD in the TVET frameworks limits their inclusion in qualifications, standards and the curricula, meaning TVET institutions will hardly practice them in their academic or technical skills training delivery, assessment or reporting.

The national and county governments in Kenya face a number of challenges related to financing quality and relevant TVET programs and skills systems. One way to reduce the impact of such challenges is the integration of core values and WYD approaches in training delivery and assessment practices with a view to enhancing the quality of teaching and learning that take place in TVET institutions. Arguably, improving less-emphasised WYD skills and core values such as creativity, critical thinking, teamwork and collaboration, communication, and problem-solving has the potential to improve the quality of the much emphasized academic and technical skills. That said, the current study did confirm the presence of some core values and WYD skills in TVET institutions, though there was no consistent and sustainable system within them for the trainers to continuously improve their skills in the delivery of core values and WYD skills. The current study therefore finds that, although a lot of efforts have gone into job-skills production among the youth, much remains to be done to ensure TVET frameworks effectively develop the core values and WYD skills that can effectively enhance the transition from training institutions to the workplace among the youth.

7.2   Implications of the findings for policy, practice and research

Policy
The results of this study indicate that the promotion and production of WYD in the TVET sub-sector needs improvement. TVETA and NVCET in consultation with other key stakeholders, such as industry, have a role to play in developing effective strategies for WYD in TVET institutions. Such strategies could include strengthening core values and WYD in curriculum implementation, assessment and qualification frameworks, strengthening the capacity of TVET instructors to use WYD in their teaching, and strengthening peer-to-peer support among students.

Re-energizing collaboration with industry through attachments, internships and apprenticeships will help enhance the ability of TVET to deliver their mandate. Additionally, the machinery and facilities found on-campus should complement those in workplaces. For this to work well, institutions will have to formalize relations with the private sector, particularly those in urban centers as they are in close proximity to industry. For those in settings with limited opportunities such as rural areas, institutions will need to partner with the respective county governments as well as well as small and medium size enterprises (SMEs) in those jurisdictions to equip the youth with desired WYD skills. This could be done through a partnership between TVETA and the Micro and Small Enterprise Authority in Kenya.

Practice
While the students had strong digital literacy, they were generally weak in functional literacy and numeracy, as well as in social-emotional skills. Institutions could capitalize on the students' digital literacy and promote the acquisition of the weaker skills through increased use of affordable digital technology instead of traditional classroom settings. TVET institutions could also consider more peer support and team learning strategies, as well as increased opportunities to practice the skills required in workplaces through formalized programs such as internships.

Improved integration of WYD into teaching practices as well as the need for professional development of instructors in the teaching of these skills at TVET institutions should be emphasized and resourced (human and capital resources).

While it was clear that instructors felt that the lack of adequate resources was a hindrance, it may be over-optimistic to expect such facilities in each institution in the short-term due to budgetary limitations. A more realistic scenario is for the institutions and TVETA to train instructors on adaptive techniques that could help them optimize the utilization of existing facilities.

Efforts to improve the levels of soft skills for WYD among TVET students should pay attention to the relatively low-scoring items such as resourcefulness and interpersonal skills.

Research
Further areas of research could explore the quality of the aspects of WYD, for instance entrepreneurship, communications and life skills, which were observed in the TVET institutions surveyed. This may help explain, for example, why the observed preference for social-emotional skills in TVET did not differ between first and final year students. It would also be useful to generate case studies of institutions and students who were found to be strong in WYD with a view to understanding what it takes to champion WYD in different contexts. Finally, future studies should adopt a nationally representative sample, and make more observations such as instructional delivery as well as assess instructors on WYD skills.

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Appendices
Appendix 1.1: Description of study counties

Brief description of each study site/county			
Panel A: General description of each study site			
County	**Headquarters**	**Brief description**	**Main economic activity**
Garissa County	Garissa	- Garissa County lies on the Tana River and is the geographic gateway to the interior of the county. - Besides being a predominantly Muslim (Somali) town, Garissa is also the hub in the ongoing humanitarian food aid program into the northeast of Kenya. - According to the Kenya 2009 Population Census, Garissa County is home to some 623,060 people. A male population of 334,939 and a female population of 288,121.	Pastoralism is the main economic activity among the communities in the county. Tourism sector is also growing as seen by high number of hotels and resorts coming up.
Kakamega County	Kakamega	- The County is located in Western part of Kenya, bordering Vihiga County to the South, Siaya County to the West, Bungoma and Trans Nzoia Counties to the North, and Nandi and Uasin Gishu Counties to the East. - It covers some 3,052 sq. kilometers with a total of 1,660,651 people, consisting of 797,112 males and 863,539 females (2009 Census)	- The main economic activity is agriculture and fishing. It also makes gains from tourism, particularly from Kakamega Forest and the *crying stone of Ilesi* (a 40 metre high rock dome resembling a human figure whose 'eyes' drop water).
Nairobi County	Nairobi city – also the capital of Kenya	- Located in the southern part of the Kenya. - Cosmopolitan and mainly urban in settlement. - The county/city's population stood at 3,138,369 (2009 Census).	- Community, social, personal services, professional services, and business services sector, account for 52.1% of all the income generated in the Nairobi
Kisumu County	Kisumu	- Is the third largest city in Kenya after the capital, Nairobi and the coastal city of Mombasa. - Kisumu is the principal city of western Kenya and the proposed headquarters of the Lake Region Economic Block, which is a conglomeration of 15 counties in western Kenya. - It has a total population of	- The major economic activities are subsistence farming/agriculture (livestock keeping, rice farming, sugarcane farming) and fishing

County	Headquarters	Brief description	Main economic activity
		968,879 (2009 Census).	
Meru County	Meru	- Meru County is located in the Eastern region of Kenya, about 225 kilometers northeast of Nairobi. - It covers some 6,936 sq. kilometres, and shares borders with Isiolo to the North, Nyeri to the South West, Tharaka-Nithi to the South West, and Laikipia to the West. - The county has a total population of 1,365,301 (2009 Census).	- The main economic activity for the county is agriculture, both subsistence and commercial (fruit growing and miraa – khat)
Mombasa County	Mombasa	- Located along the Indian Ocean, Mombasa is the second largest city in Kenya. - The county of Mombasa has a total population of 939,370.	- Its main economic activities include tourism, fishing and subsistence farming, sugarcane farming, cashew nuts and coconuts farming as well as livestock farming.
Nyeri	Nyeri	- Is located about 150 kilometers north of Nairobi, and covers 3,337 sq. kilometers. It shares borders with five other counties; Kirinyaga to the East, Nyandarua to the West, Muranga to the South, Laikipia to the North and Meru to the North East. - It is home to 693,558 people (male-49% and 51% female), according to the 2009 census.	- The main economic activity is agriculture, both commercial and subsistence.
Turkana County	Lodwar	- Turkana County is situated in northern Kenya, and is the second largest county in Kenya covering 68,680 sq. km. - It borders Marsabit County to the East, Samburu County to the South-East, Baringo and West Pokot to the South-West. - It also borders South Sudan to the North, Uganda to the West, and Ethiopia to the North-East. - According to the 2009 National Census, the county had a total population of 855,399 (52.03 males and 47.97	- The main economic activity of the Turkana County residents is nomadic pastoralism of cattle, donkeys, camels and goats.

Brief description of each study site/county
Panel A: General description of each study site

Brief description of each study site/county			
Panel A: General description of each study site			
County	Headquarters	Brief description	Main economic activity
		females).	
Uasin Gishu County	Eldoret	- Located in the mid-west in the former Rift Valley Province - Mainly rural in settlement	- Agriculture – mainly large scale wheat and maize farming.

Appendix 2.1: Items included in the student household socio-economic status scale and their scaling properties

Item-Total Statistics				
	Mean	Std. Dev.	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
TV	0.753	0.432	0.576	0.812
Working smart phone	0.846	0.361	0.391	0.825
Computer	0.345	0.476	0.576	0.812
Post Office Box	0.193	0.394	0.417	0.823
Tablet	0.171	0.376	0.412	0.824
Video player	0.567	0.495	0.536	0.815
Radio, music/sound changer	0.839	0.367	0.171	0.838
Refrigerator/freezer	0.360	0.480	0.645	0.806
Car	0.254	0.436	0.554	0.814
Piped water	0.588	0.492	0.517	0.817
Electricity	0.816	0.388	0.432	0.823
Washing machine	0.086	0.281	0.323	0.829
Farm machinery	0.066	0.248	0.186	0.834
Flush toilet	0.425	0.494	0.613	0.809

Scale Statistics			
Mean	Variance	Std. Dev.	N of Items
6.3100	10.595	3.25504	14

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.831	0.820	14

Appendix 2.2: Items included in the student social involvement scale and their scaling properties

Item-Total Statistics				
	Mean	Std. Dev.	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Physical fitness training	0.404	0.491	0.452	0.819
Charity walks	0.304	0.460	0.469	0.818
Blood donation drives/campaigns	0.115	0.319	0.319	0.827
Volunteer/community service	0.385	0.487	0.497	0.815
National youth days	0.198	0.398	0.451	0.819
Courtesy visits to hospitals, children's homes or orphanages	0.361	0.480	0.410	0.822
Orientation of new students	0.491	0.500	0.376	0.825
Debating events	0.280	0.449	0.506	0.815
Music events	0.313	0.464	0.538	0.812
Sporting events (e.g. ball games)	0.483	0.500	0.536	0.812
Institutional clubs and societies	0.385	0.487	0.560	0.810
Athletics	0.247	0.431	0.496	0.816
Drama events	0.216	0.412	0.528	0.814

Scale Statistics			
Mean	Variance	Std. Dev.	N of Items
4.183	11.458	3.385	13

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.829	0.829	13

Appendix 2.3: Items included in the academic/technical skills, life skills, core values and social-emotional skills scales

a) Academic and technical skills scale

Item-Total Statistics				
	Mean	Std. Dev.	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Numeracy skills (i.e. being able to work with numbers)	0.674	0.469	0.406	0.752
Literacy skills (i.e. being able to read and write)	0.749	0.434	0.476	0.740
Social media skills (e.g. blogging, using Facebook)	0.605	0.489	0.359	0.762
Entrepreneurship (i.e. being able to start a business)	0.736	0.441	0.501	0.735
Marketing skills (i.e. being able to convince customers to buy your products)	0.726	0.446	0.509	0.734
Financial management skills (i.e. ability to plan and allocate finances again	0.742	0.438	0.508	0.734
Basic computer skills (i.e. ability to use Word, Excel, etc.)	0.683	0.465	0.480	0.739
Technical skills (i.e. ability to perform tasks related to your area of train	0.776	0.417	0.499	0.736

Scale Statistics			
Mean	Variance	Std. Deviation	N of Items
5.692	4.923	2.219	8

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.766	0.769	8

Life skills

Item-Total Statistics				
	Mean	Std. Dev.	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Interpersonal skills (i.e. ability to relate with others)	0.727	0.445	0.544	0.814
Communication skills	0.787	0.409	0.585	0.808
Self-control skills (i.e. ability to control your feelings and behavior)	0.775	0.417	0.589	0.808
Disputes resolution skills (i.e. ability to settle disagreements)	0.675	0.468	0.538	0.815
Team working skills (i.e. ability to work in a team)	0.750	0.433	0.562	0.811
Decision-making skills	0.773	0.419	0.597	0.807
Persuasive skills (i.e. ability to convince others to an idea/ or line of thinking)	0.652	0.476	0.511	0.819
Time management (i.e. ability to work within prescribed timelines)	0.823	0.381	0.547	0.814

Scale Statistics			
Mean	Variance	Std. Dev.	N of Items
5.964	5.484	2.342	8

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.831	0.833	8

Core values

Item-Total Statistics				
	Mean	Std. Dev.	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Integrity (i.e. being honest, fair, sincere)	0.751	0.433	0.546	0.756
Accountability skills (i.e. ability to be responsible, liable, answerable)	0.721	0.448	0.546	0.757
Hard work skills (i.e. ability to work hard, diligently)	0.826	0.379	0.583	0.745
Perseverance skills (i.e. ability to be dedicated, committed, determined)	0.720	0.449	0.576	0.746
Discipline skills (i.e. ability to follow rules or routines)	0.830	0.375	0.597	0.742

Scale Statistics			
Mean	Variance	Std. Deviation	N of Items
3.849	2.369	1.539	5

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.789	0.792	5

Social-emotional skills

Item-Total Statistics				
	Mean	Std. Dev.	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Adaptability skills (i.e. ability to change your approach to doing things)	0.645	0.479	0.527	0.765
Attention skills (i.e. ability to concentrate on what is happening)	0.704	0.457	0.546	0.758
Gratitude skills (i.e. ability to be thankful)	0.713	0.452	0.590	0.744
Empathy skills (i.e. ability to understand other people's situation)	0.659	0.474	0.607	0.737
Forgiveness skills (i.e. ability to let go of negative emotions like paying)	0.717	0.451	0.572	0.749

Scale Statistics			
Mean	Variance	Std. Dev.	N of Items
3.438	2.908	1.705	5

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.790	0.790	5

Appendix 2.4: Items included in the TVET support scale

Item-Total Statistics				
	Mean	Std. Dev.	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Bursaries/scholarships are available	0.372	0.483	0.309	0.851
Field attachment/internship programs are available	0.503	0.500	0.518	0.833
TVET linking students with future employers	0.416	0.493	0.518	0.833
Equipment/materials/machineries are up-to-date	0.470	0.499	0.596	0.825
Student proud of knowledge & skills gained in this TVET	0.669	0.471	0.545	0.830
Student believe easy to get a job with technical skills gained	0.650	0.477	0.552	0.829
Technical workshops/laboratories are sufficient	0.381	0.486	0.597	0.825
Equipment/materials/machineries are adequate	0.348	0.476	0.575	0.827
Equipment/materials/machineries are compatible with curriculum	0.419	0.493	0.636	0.821
Student can debate/present ideas/projects to others	0.409	0.492	0.574	0.827

Scale Statistics			
Mean	Variance	Std. Dev.	N of Items
4.636	9.898	3.146	10

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.845	0.845	10

Appendix 2.5: Items included in the instructor-courses support scale

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Training course matches with the opportunities in the job market	0.658	0.475	0.548	0.884
Training course matches with the opportunities for self-employment	0.653	0.476	0.505	0.886
Training course curriculum has special topics in ethics/behavior	0.573	0.495	0.581	0.883
Training course includes non-academic skills for solving everyday problems	0.497	0.500	0.616	0.881
Training course includes non-technical skills to prepare me for job market	0.355	0.479	0.447	0.889
Instructors emphasize the importance of non-academic & non-technical	0.448	0.497	0.592	0.882
Instructors use modern teaching aids/materials like YouTube	0.358	0.480	0.489	0.887
Instructors familiar with scientific/practical knowledge in their area	0.553	0.497	0.647	0.879
Instructors encourage creativity	0.602	0.490	0.670	0.878
Instructors give problems which can be solved using multiple methods	0.508	0.500	0.675	0.878
Instructors provides opportunities to critique other students' work	0.482	0.500	0.649	0.879
Instructors encourages originality in solving problems	0.515	0.500	0.680	0.878
Required to complete community service as part of training	0.318	0.466	0.472	0.888

Scale Statistics			
Mean	Variance	Std. Deviation	N of Items
6.520	17.452	4.178	13

| Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.890	0.890	13

Appendix 2.6: Overall WYD scores components

WYD Area (Components)	Number of items	Proportion answering all items correctly	Mean score out of 100%	Remarks
Numeracy	2	21.35%	41.79%	Students were presented with ingredients required to make 200 *mandazi* (a form of fried bread) and their prices, and asked questions testing their ability to apply simple mathematical operations based on the information presented.
Literacy	3	41.69%	70.70%	Students were presented with a simple table on a card showing activities given to a farm supervisor each day of the week, and asked questions testing their ability to acquire and use information from the table.
Digital Learning	4	80.76%	90.45%	Students were asked to perform simple tasks using a mobile phone – such as sending a text message, buying airtime, and downloading media files. There were 7 digital tasks divided into groups of 4 for task A and 4 for task B. Each student tackled either task A or B
Soft skills:				Soft skills divided into assessment of: a) capabilities and values; and b) an assessment based on a case scenario
a) Capabilities and values	71	0.41%	79.65%	Students who indicated level of agreement towards a given statement were considered to have possession of the assessed capability/value (split into percentiles).
b) Case study assessment	5	74.86%	92.94%	Students were presented with a story involving everyday social interactions and asked how best they would handle issues in the story using problem-solving and decision-making; coping with stress and emotions; peaceful conflict resolution; and interpersonal relationship and communication.
Overall (weighted score)	85	10.52%	79.73%	Weighted WYD score in respect to the number of items per WYD area
WYD Overall scores	5 Components	0.03%	-	Overall scores for all who answered items correctly (five components comprise numeracy, literacy, digital learning, soft skills (capabilities and values and case study assessment))

Appendix 2.6.1: Assessment of the overall scores by various categories.

Disaggregated, the scores by gender indicate that males' scores were slightly higher than females' by 2% (which was significantly different at 5% level). In addition, the scores comparisons by TVET type show that NPs' performance was higher compared to either TTI or VTC. Students' level of study did not affect the overall scores by students, there was insignificant difference of only 0.1%. Performance per county indicates that the highest performance was

WYD weighted scores disaggregated by sub-groups
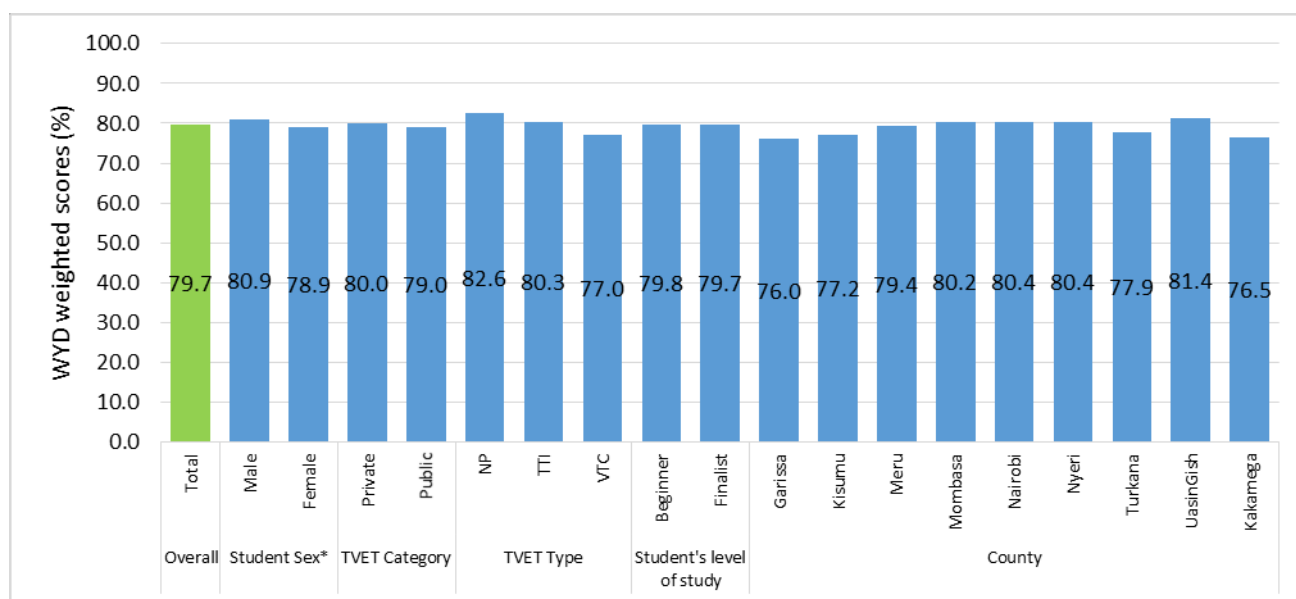
Q1 to Q4 quartiles on capabilities and values assessments and weighted WYD mean scores

		Capabilities and values statements[1]		WYD mean score[2]	
Quartiles	Range	Freq.	Percent	Freq.	Percent
Q1	<=25%	5	0.15	5	0.15
Q2	25 to 50%	25	0.74	36	1.07
Q3	50 to 75%	811	24.05	963	28.56
Q4	>75%	2,531	75.06	2,368	70.23
Total		3,372[3]	100	3,372	100

1. Agreement levels on capabilities and values statements
2. *WYD mean score*
3. Number of respondents who answered all questions

More than 75% of students attained scores greater than 75% on capabilities and values assessment questions comprising 71 items and over 70% attained scores greater than 75% on WYD mean score (comprising of a composite weighted mean of the 5 components, *viz.* numeracy, literacy, digital learning, soft skills (capabilities and values, and case study assessment)).