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Vocational tertiary education of young adults in Kenya: model development

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VOCATIONAL TERTIARY EDUCATION OF YOUNG ADULTS IN KENYA: MODEL DEVELOPMENT

A dissertation submitted in partial satisfaction

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Doctor of Philosophy in Global Leadership and Change

by

Kristina Marie Lux

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Eric Hamilton, Ph.D. – Dissertation Chairperson

This dissertation, written by

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under the guidance of a Faculty Committee and approved by its members, has been submitted to and accepted by the Graduate Faculty in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

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ACKNOWLEDGEMENTS

I've dreaded writing this for quite some time, only because there is no way to properly thank those who have helped catapult me to where I stand in this moment…but here goes nothing.

Several colleagues have researched, coded, and traveled alongside me during this journey. You have been instrumental in this accomplishment, and I thank you for selflessly sharing your time with me. To my committee members, Dr.s Mary Achieng and Martine Jago, your encouragement through this process has been invaluable and I thank you immensely for believing in me.

This dream has always been twofold; to graduate and to build a school in Africa. One seemingly obtainable while the other simply a "what if." That "what if" was transformed to a "why not" the day I stepped into the shadow of Dr. Hamilton. Dr. H., to say you brought me to life would not adequately encapsulate the gifts you have given me. You reach far beyond what any mentor could ever be, and I can only ever thank you. Asante.

I've been lucky enough to have the dearest of friends who have kept me going through endless amounts of encouragement, laughter, and wine. "You are the most beautiful thing I've ever seen. I will love you when you are a still day. I will love you when you are a hurricane"

To my travel partner and one of the most hardworking individuals I know, Glen. You opened my eyes to so many things that I somehow missed in life. You have sheltered me from myself while also giving me room to realize on my own time, the beauty this life encapsulates.

To my family and boulder. I have reached out numerous times in my life for help only to receive an unwavering response. Uncle Lou, my last words to you were "I'm nervous to start teaching" and you simply said, "you'll be great". Your calming words have propelled me through many hard times and while you are tremendously missed, your calming spirit and strength lives on. My Cousin Tim, your artful linguistic eloquence has made this manuscript come alive, thank you. My brothers and my sister, I feel the oldest sibling is always tasked with being wise and maybe even a bit admirable. However, I remain consistently in awe of your collective strength, intellect, achievements, and overall contributions to this country, community, and family. You've enriched my life and have made this world a better place.

Mom my one regret in life is not being a mother. This regret is not rooted in the lost dream of chasing around a small version of myself— rather, its rooted in the lost opportunity of passing along the incredible wisdom, love, faith, and unwavering compassion you have incessantly bestowed upon me throughout my life. You give an insurmountable part of yourself to everyone you meet. You are the mother daughters dream of.

Dad this dissertation is dedicated to you. I'm so glad you're here to witness something you've instilled in me at a very young age. You are a comedian, a legend in your professional careers, and most importantly our patriarchal backbone. You are a force to be reckoned with and the glue that binds us together. I hope I've made you proud.

VITA

KRISTINA M. LUX MEd, MA

EDUCATION

Doctor of Philosophy [PhD] Pepperdine University
Master of Arts Psychology [MA] Pepperdine University
Master of Education [MEd] John Carroll University
Bachelor of Science Business Administration [BS] California Polytechnic University

PROFESSIONAL EXPERIENCE

Micro-Trade School; Kenya
June 2021—Present
Founder and Creator

- Opened *three* micro-trade schools in rural Kenyan communities for learners seeking the acquisition of vocational skills
- Leveraged asset-based instruction through mentorship and hands-on practical learning in an effort to empower learners in their pursuit of becoming economically independent
- Secured private donations in six months, exceeding $20,000 necessary for the foundation of micro-trade schools i.e., Teacher salaries, learners' transportation, lunches, and initial purchases of machines and supplies

Tailoring and Catering School: Kiminini, Kenya

- Learners interested in tailoring and catering are mentored and taught skills scaffolding toward the creation of school uniforms or small meals

Tailoring School: Birunda, Kenya

- Learners interested in tailoring, are mentored, and taught the art of creating small clothing items

Hair Dressing School: Birunda, Kenya

- Learners interested in hair dressing, such a braiding, are mentored and taught the art of hair dressing

St. Anne School; Laguna Niguel, CA
June 2018—July 2021
Principal: Head of Lower School; Grades Kindergarten through Five
Accreditation

- Lead review by the California Association of Independent Schools (CAIS)
- Procured accreditation for the Western Association of Schools and Colleges (WASC)
- Directed review by the Western Catholic Educational Association (WCEA)

Curriculum Development

- Initiated educational approach of learner centric learning, in promotion of a healthy, safe, and asset-based learning environment for over 350 learners
- Expanded and revamped English Language Arts, Mathematics, Social Studies, and Science (NGSS) curricular frameworks
- Created grade specific scope and sequence teams to ensure cohesion throughout grade levels
- Wrote and adopted a five-year implementation plan for the Next Generation Science Standards (NGSS), approved by the board of directors in partnership with parents and faculty

Professional Development

- Responsible for the hiring and development of 35 teachers as well as 8 staff members
- Facilitated poignant professional development opportunities to kindergarten through fifth grade teachers
- Co-created differentiated instruction initiative for learners K-8 i.e., seminars, personal growth meetings, and teacher reflection exercises and observations
- Devised professional development working document for assessing teachers

Operations & Admissions

- Collaborated with admissions team toward the recruitment and retention of families
- Published, developed, and oversaw successful re-entry program for 2020 school year
- Revamped school safety procedures in case of emergency i.e., lockdown, fire, earthquake

- Presented ongoing data from school performance to board members, quarterly

Logistics & Budgeting

- Developed and maintained a fiscally responsible annual lower school budget
- Sought annual Title II funding toward the promotion of a quality and effective learning environment

JSerra Catholic High School; San Juan Capistrano, CA
August 2006—August 2017
Director of Online Learning

- Managed long range planning to develop and implement the school's strategic goals related to online learning
- Redeveloped department curriculum to ensure successful implementation of student online program
- Initiated transition of JSerra's outsourced online program to JSerra's in-house online program while maintaining UC & NCAA accreditation
- Organized and led international university meetings to increase efficiency, communication, and innovation in global education
- Lead and collaborated with UCSD in hosting Chinese International Training Seminar
- Managed sound departmental budget
- Responsible for the hiring and development of staff members and online teachers

Mathematics Department Chair

- Hired and managed mathematics educators while recognizing their key areas of success and improvement
- Strengthened Algebra curriculum while maintaining UC & NCAA accreditation
- Collaborated with grade schools to successfully transition learners into high school mathematics program
- Responsible for the hiring and development of 10 mathematics teachers

Mathematics Teacher

- Taught courses in mathematics including Pre-Algebra, Algebra One, Algebra One Honors, Algebra Two, Algebra Two Honors, Geometry, and Geometry Honors

Our Lady Queen of Angels School
August 2004—August 2006
Third Grade Teacher

- Traveled and facilitated summer on-site teacher training program for multi-lingual school in Santiago, Chile

Lowden Elementary School
August 2002—May 2003
Third Grade Intern

- Ran full year instructional classroom alongside mentor teacher
- Rotations included Kindergarten and Pre-K one month teaching positions

Holy Trinity School
January 2002—June 2002
Kindergarten Long Term Substitute Teacher
Fifth Grade Long Term Substitute Teacher

ADDITIONAL PROFESSIONAL EXPERIENCE

Pepperdine University; Malibu, CA
November 2016—Present
Research Assistant

- *International Community for Collaborative Content Creation (IC4):* Investigated how STEM digital makerspace collaborations help others globally, and how they can make a significant societal impact. Integrated participatory teaching and student-centric pedagogy, globally. Introduced technological curriculum and software through global workshops

- *Young Scholar Program (YSP):* A retrospective study involving former students of the YSP, seeking to understand their directions and career trajectories
- *Asset Based Learning Environments (ABLE):* The ABLE project engages learners in a global project-based STEM learning and media-making community. Supports to understand the processes of collaborating meaningfully with others outside of one's culture, and developing sophisticated competencies in STEM

Butterfly Effects
September 2022—Present
Registered Behavior Technician (RBT)
- Facilitated at home-based treatment for learners diagnosed with autism
- Worked directly with the learner and family toward the procurement of communication, play, and essential life skills

Neutrogena Corporation—A Johnson & Johnson Company
June 1999—December 2001
Marketing Associate
- Coordinated partnerships with management to capitalize on existing synergies which aided in cross promotion of the base and cosmetics business
- Evaluated ROI on a variety of interactive marketing programs to identify opportunities for continuous improvement and make future recommendations
- Led team responsible for offline merchandising programs intended to strategically increase sales and build brand awareness
- Developed, launched and managed sales technology toward the development of online and offline strategic plans
- Re-launched Neutrogena.com and launched NeutrogenaCanada.com

CONFERENCE PRECEDINGS, PUBLICATIONS, & GRANTS

*Dissertation for Pepperdine University**
- Lux, K. (2023). Vocational Tertiary Education of Young Adults in Kenya: Model Development

Poster Accepted for the 2023 American Educational Research Association (AERA) Chicago, Illinois
- Lux; K., Lee; S., Molloy, J., Jokodola, A., Charles, R. (2023). STEM Career Choice: Middle School vs High School Engagement in an Informal Learning Environment
- Charles, R., Jokodola, A., Lee, S., Molloy, J., Lux; K., Hamilton, E. (2022). Overarching Principles of Social Cognitive Career Theory, Self Determination Theory, and Interest-Driven Career Theory Through the Lens of Young Scholars Program.

Provost Grant Recipient for Ph.D, Research, Pepperdine University 2022

Presentation for the 2022 International Society of the Learning Sciences (ISLS) Hiroshima, Japan
- Espino, D., Orrantia, H., Lux, K., Gibson,J. Oliveira, L., and Hamilton, E. (2022). Big or Small? Examining the Influence of Group Size on Discourse Patterns in a Virtual, Collaborative, Informal, STEM-focused Learning Community.

Presentation for the 2022 Solstice and CLT Conference Ormskirk, England
- Lux, K., Hamilton, E., Lee, S., (2022). Approaching Informal STEM Learning Environments with an Asset-Based Orientation
- Hamilton, E., Lux, K., Lee, S. (2022). Epistemic Network Analysis and Quantitative Ethnography in the Study of How Secondary Students Interact across Cultural and National Boundaries.

Poster Presented for the 2022 International Conference on Quantitative Ethnography (ICQE) Copenhagen, Denmark
- Espino, D., Orrantia, H., Trimboli, H., Green, S, Lux, K. Lee, S., (2022); Leaving Ukraine: Analysis of Interviews with Ukrainian Refugee Women on Lived Escape Experiences.

- Espino, D., Lux, K., Orrantia, H., Green, S., Trimboli, H., & Lee, S. (2022) Ukraine War Diaries: Examining lived experiences in Kyiv during the 2022 Russian invasion.

Poster Presented for the 2019 American Educational Research Association (AERA), Toronto, Canada
- Eagan, B., Lee, S., Lux, K., & Hamilton, E.., (2019, April). Measuring connections between Affect and motivation in informal STEM learning.

Presentation for the 2016 International Organization of Social Sciences and Behavioral Research Conference San Antonio, Texas
- Lux, K., & Fraizer, L. (2016). Switzerland Teacher Development Programs: What are they doing "right"?
- Iyamba, V., Joo, H., Lee, S.., Lux, K., Machera, J., Fraizer, L. (2016). Developing the Voice of Marginalized Youth: Creating Spaces for Leadership and Community Engagement.

BOARD LEADERSHIP EXPERIENCE

Outreach to the World Incorporated [OWI]; Kiminini, Kenya
- Board Member and Secretary

Plant A Seed Africa
- Board Member

ABSTRACT

The purpose of this study is to create a model of tertiary vocational education in Kenya. Despite considerable progress in Kenya over the last 20 years, current education models, low attendance, and low academic proficiency levels preclude many vulnerable learners from becoming employable. Utilizing semi structured interviews of eight Kenyan participants, this study explores the testable design principles necessary to create such a micro-trade model. Utilizing Epistemic Network Analysis (ENA), a quantitative ethnographic technique, to model the structure of connections in data, this study attempts to systematically identify a set of constructs, as they are recorded in interview codes, connected to one another within these interviews. Two intellectual parallels emerged pertaining to the lack of fundamental and essential needs many Kenyans experience as well as salient issues of corruption often hindering the development of Kenya's politics, economy, and democracy. It was imperative that a targeted approach to education was maintained and underpinned the trajectory of the micro-trade model when identifying the design principles for this study. This study reports the finding that a fresh model of tertiary vocational education, micro-trade, could impact the ability of vulnerable youth to become economically independent. It proposes such a model appearing in Chapter 4, schematizing barriers to tertiary education, micro-trade as a response to those barriers through the lens of Kirkpatrick's model of education, and aspirational results from careful design and blend of Kirkpatrick's model with micro-trade. Such design and blending through design-based research constitute proposed next steps for this effort.

Keywords: education, Kenya, tertiary education, micro-trade

Chapter 1: Introduction

Background of the Study

According to the United Nations' (2019) Sustainable Development Goals, education should be equitable and inclusive to promote lifelong learning for all. In 2019, the UN found that over 262 million learners did not attend school and nearly half of all learners were not meeting minimal proficiency levels in reading and math. Lack of attendance and minimal proficiency levels in Sub-Saharan Africa is exacerbated by a lack of accessible learner-centric learning environments, causing low motivation, low responsibility, low diligence, and lack of dignity among students and inevitably perpetuating high rates of unemployment (Council on Foundations, 2019; United Nations, 2019). Sub-Saharan Africa's unemployment rate in the year 2020 was 6.63%, a 0.35% increase from 2019. Furthermore, that World Bank (2009) report stated that Sub-Saharan African youth accounted for nearly 60% of the unemployed. Subsisting on the equivalent of $2 USD per day, nearly 72% of Sub-Saharan African youth live below the poverty line (World Bank, 2009).

With limited efficacy, many political and nonprofit entities have sought to ameliorate issues undercutting education in Sub-Saharan Africa by increasing access to physical needs, elevating qualified teachers, retaining learners, and instituting readiness programs (Duncan & Murnane, 2014; Işcan et. al., 2015). Many educational leaders have stated that wedging traditional European-American practices into the lives of Sub-Saharan Africans is neither sustainable nor equitable.

In many Sub-Saharan countries, compulsory schooling years (years when learners are required to attend school by law) are categorized as primary and secondary education. Following compulsory schooling years are tertiary years of schooling, or postsecondary education. Tertiary

years of school include undergraduate or graduate credentials that may encompass academic degrees or certificates. Included in the umbrella of tertiary schooling is Technical and Vocational Education and Training (TVET): a comprehensive term referring to the study of a vocation or a trade-based pedagogical training system. In addition to general education, TVET curricula encompasses the study of technologies, acquisition of knowledge, understanding of practical skills relating to occupations in various sectors as noted by the United Nations Educational Scientific and Cultural Organization (UNESCO, 1984). Vocational training programs have increased in popularity among Sub-Saharan countries, such as Kenya. This increased interest in vocational schools such as TVET can be attributed to current unsuccessful traditional methods of education in Kenya, where retention, learner-centric content, and intrinsic motivation are low during compulsory years of schooling (Abuya et al., 2015).

Culminating studies initiated by the World Bank (2020), United Nations (2020), UNESCO (2020a) have found a stark deficiency in overall school readiness which inherently contributes to low compulsory school enrollment in Kenya (Lloyd et al., 2000). In response to low school enrollment, the Kenya national study report on Out of School Children was collectively published by The World Bank et al. (2021). Constituencies of this report included stakeholders in education from the Kenyan Ministry of Education, government agencies, national and county officers, participants from the Institute of Special Education, as well as the Teachers Service Commission. While the Kenyan population is estimated at 47 million, according to the 2019 census, nearly 18 million are learners of compulsory age. As reported by UNESCO (2020b), nearly 1.8 million Kenyan learners do not attend school. In turn, withdrawal from primary school becomes common in the last two years of the primary school cycle while withdrawal increases even more so at the secondary levels (Lloyd et al., 2000).

The longest duration of schooling years unfolds during the primary years of Kenyan learners. During the primary stage, learners develop fundamental key skills, such as fine and gross motor, cognitive, and socialization. Vulnerable learners exposed to tribulations such as poverty or regional imbalances often encounter difficulties gaining access to primary education (Beatrice & Muchimuti, 2022). Without a solid foundational skill set at the primary stage, many learners find the leap to the secondary stage of schooling even more difficult. During the years of secondary education, base construction of human capital is established to prepare and train learners for further education and to enter the workforce. Continued lack of attendance during the secondary education years manifests further restrictions to these vulnerable learners. Researchers have attempted to explain why Kenyan learners drop out during these formative compulsory years (Mwiria, 1990). First, the Kenyan compulsory school day could be considered as long, typically lasting between seven to eight hours. Kenyan schools require learners to attend Monday through Friday, and many schools also require Saturday school attendance. Compared to the annual average 180 school days in the United States, the average Kenyan calendar requires learners to attend over 200 school days each year. Second, Lloyd et al. (2000) note that frequent teacher absences are reported. When teachers are absent, classes are often doubled up, taught by noncredentialled staff, or even cancelled with the hope of being rescheduled. Third, although teaching is intended to be conducted entirely in English, many Kenyan teachers speak other languages such as Swahili or the native first language throughout the scheduled school day (Ministry of Education, 2015; Mwiria, 1990). This is an issue because all primary school learners are required to pass the Kenyan Certificate of Primary Education (KCPE), which is written entirely in English (Ministry of Education, 2015). Entrance into secondary school is dependent on the learner passing the KCPE (Mbugua et al., 2012). Finally, the gender gap between girls and

boys also emerges during the last years of primary school. The gender gap is most noticeable in the less-developed part of the country and in the transition from primary to secondary school (Lloyd et al., 2000). While many female learners undergo puberty during their primary school years, they also become exceptionally vulnerable during adolescence. Female vulnerability during this time can be attributed to widely held negative mindsets about adolescent girls, and they are often exposed to early pregnancies and marriages that contribute to the rampant dropout rates (Chege & Sifuna, 2006).

In response to the low attendance and low compulsory school retention, a new system of competency-based curriculum (CBC) was introduced in Kenya to engage and empower Kenyan learners and students. As defined by the Government of Kenya (2015), the term *learner* refers to a youth undergoing instruction in a compulsory learning institution, while the term *student* is defined as a young adult enrolled and documented in a recognized tertiary institution. Part of the CBC implemented by the Kenya Institute of Curriculum Development (KICD) included a 2-6-6-3 system of education (Ministry of Education, 2015). This new system for learners and students is comprised of compulsory pre-primary (2 years) and primary (6 years) school. Once completed, learners sit for the national Kenya Certificate of Primary Education examination (KCPE) and then continue to middle school (6 years). At the end of middle school, students sit for the Kenya Certificate of Secondary Education (KCSE). This examination is used for admissions into universities (3+ years) as well as many TVET or other higher-education tertiary programs.

Kenya is currently expanding the TVET sector with increased hope for economic growth (Erima, 2021). Enrolments in Kenyan TVET programs have grown by nearly 33% from the year 2018 to 2019 (Kenyan Economic Survey, 2018, 2019). Funding has also increased by 30% since 2017 and has enabled the recruitment of an additional 2,000 TVET instructors, an increase in

student grant offerings, and the establishment of 15 new TVET training institutes. These shifts project growth for future Kenyan TVET programs, yet several barriers remain: poor quality of and tenuous perceptions of current TVET programs, a mismatch between skills offered in TVET institutions and the requirements of actual labor market demand, and meager institutional work conditions.

As revealed by the Council on Foundations (2019), Kenya requires the creation of an educational model that takes an innovative approach to learning and captures the varying intelligence of students, specifically those vulnerable learners who are falling behind and dropping out of school as noted by the Organization for Economic Cooperation and Development (OECD, 2016). Initiating a learner-centered model that accounts for the environmental influences, backgrounds, and beliefs of a learner is vital. The creation of a new tertiary model schooling, subsequently following the compulsory grade level years, could potentially perpetuate sustainable economic change for vulnerable youth.

One example of the need for sustainable educational change exists near the Western border of Kenya in Kiminini. Outreach to the World Incorporated (OWI) is a nonprofit public charity founded in 2004, and it operates in the village. OWI's mission is to promote self-sufficiency in vulnerable people in Kenya and to be a model for improving the lives of children and communities in need. Its purpose is to provide aid by educating and empowering vulnerable people, including orphans and widows. Over the last 20 years, OWI has expanded significantly. Since the purchase of land in Kiminini village, OWI has built a community center, drilled and erected several clean water wells, and provided educational seminars to the learners in Kiminini. Over 100 OWI orphans have been provided funds for school fees, supplemental nutrition, and

health care. Nevertheless, rural OWI learners face many of the same deficiencies in accessing quality education that other institutions in resource-deprived areas face.

Although decades of on-site dedication to health, seminars, and paid school fees have helped guide many OWI learners to achieve a traditional educational path such as university or other tertiary programs, some of OWI's learners continue to fall short of basic fluency requirements and are dropping out of school. High compulsory dropout rates in primary schools and even higher dropout rates in secondary schools, have been corelated to teachers focused only on content assessed on the national examinations. Static standardized testing curricula does not provide customization for the learner, leaving those who drop out without tools or training to enter the workforce and with little to no concrete systematic information regarding careers or alternative tertiary programs. The implementation of a more sustainable and learner-centric model of learning is necessary for these learners in small villages such as Kiminini, across Kenya, and throughout Sub-Saharan Africa (Tierney & Lanford, 2016).

Statement of the Problem

More than half of Kenyan learners do not meet basic employment proficiency standards in mathematics, reading, and writing (Council on Foundations, 2019; United Nations, 2019). More specifically, 56% of children in Kenya will not achieve basic proficiency levels through their primary years of education (Council on Foundations, 2019). Despite considerable progress in Kenya over the last 20 years, current models of education and low attendance and low academic proficiency levels preclude many learners from becoming employable (Council on Foundations, 2019, UNESCO, 2010, United Nations, 2019). The Council on Foundations and the United Nations International Children's Emergency Fund (UNICEF) has identified several issues

that must be addressed to ensure that learners are not succumbing to the adverse circumstances perpetuated by poverty (Carmody & Baer, 2009; Gillis, 2014).

Studies show that increased access to education can contribute to poverty eradication and economic growth and basic skills such as numeracy, reading, and writing have a positive effect on the rate of return on the economy for vulnerable populations (Hannon, 2012; Mulinya & Orodho, 2015; United Nations, 2013). Since independence, the wish to eliminate poverty has been articulated through several policy papers and enactments, yet rampant poverty still abounds as nearly 38% of Kenyans continue to live below the poverty line (Oranga et al., 2020).
In its effort to combat poverty, the Kenyan government introduced free primary and secondary education as one of its objectives. Although an increase in school enrolment, reduction in illiteracy levels, and improved transition rates to secondary school has been noted, free compulsory education has not eliminated poverty as envisaged due to several challenges.
The challenges include but are not limited to large unplanned expansions of schools, understaffing, and inability of parents to provide subsistence, rendering education unable to efficiently play its role in alleviating poverty.

Purpose Statement

This study aimed to create a model of tertiary vocational education in Kenya that caters to learners during the tertiary years of schooling while suggesting ways to provide a more inclusive approach to education for vulnerable youth. Based on the interviews and feedback from Kenyan educators, noneducators, and mentors, a model of tertiary vocational education was developed. Specific key variations were addressed and woven into the creation of this model addressing current gaps in many tertiary programs, such as TVET (Council on Foundations,

2019; UNESCO, 2010; United Nations, 2019). Differences between this study's model of education compared to many tertiary education models in Kenya, as seen in Table 1.

Table 1

A Suggested Model of Tertiary Education vs. Current Tertiary Models of Education

Suggested Model	**Current Tertiary Models Such as TVET**
Shorter in duration: Learners enrolled should attend for a smaller duration of time.	Longer in duration: Many programs range from informal short-term training courses to more formal certificate programs which can last between one and three years (Marin, 2009; Rijal & Rijal; 2020).
Rural accessibility: Learners in extremely rural areas should have opportunities to attend a program in an already established educational institution or a student community center.	Urban accessibility: Most often, TVET schools are located in larger and more densely populated areas making access difficult for rural learners (Alami, 2016; Carlson & Planty, 2012)
Participatory pedagogical approach: As a learner develops, they should be understood based on their cultural practices and circumstances. Senior-level learners should teach each class, and as each learner develops and refines their skills, they will then teach the incoming cohort. In doing so, learners begin to develop as they participate within their cultural community (Rogoff, 2003).	Authoritative pedagogical approach: TVET learners are often taught in a structured hierarchy controlled by the authority, the professor. This then hinders high-level class discussions as well as collaborative learning (Alami, 2016; Hicks et al., 2011; White-Smith & White 2009).
Zero school fees: The learner should receive free education while continuing to grow, enhance, and eventually give back to the community.	Tuition or scholarship is required: Tuition and school fees are often required from many TVET institutions (Wang & Ross, 2013). Although tuition assistance in the form of financial aid is available at times, a substantial gap remains between the demand for and the supply of government financial aid (Wang & Ross, 2013).

This study focused on the creation of a tertiary vocational education model based on interviews with Kenyan experts with knowledge and experience in the field of tertiary schooling,

such as TVET, or who have engaged with vulnerable learners. This study created a model that could also be tested in the future. Testing this model could be beneficial in understanding what effect if any at all, a model of tertiary vocational education has on increasing the economic opportunity of vulnerable rural young adults in Kenya (United Nations, 2019). To create a viable and sustainable model, interview responses from a panel of Kenyan noneducators, educators, and mentors were distilled, studied, and then incorporated into the creation of a model of tertiary vocational education.

Research Questions

The desired outcome of this research study was to create a model of tertiary vocational education for young adults in Kenya that can be tested in the future. This model was identified and named micro-trade. This study explored the lived experiences and professional perceptions of Kenyan educators, politicians, and mentors. As such, it was appropriate to use a qualitative research methodology since it is the recommended approach to understand and explore how people and groups contribute to situations, experiences, events, and things (Creswell & Creswell, 2017). The following research questions guided this study:

- RQ1: What design principles for a micro-trade model will most effectively create economic opportunity for vulnerable Kenyan learners?
- RQ2: What is one model of education that incorporates these design principles of micro-trade?
- RQ3: What factors will ensure the testability of this micro-trade model?

Methodological Approach

Assumptions of the Study

This study assumed the consistency of the following possible factors. The first of these is that participants were willing to participate in the study to share their experiences as they pertain to education. Second, the study assumes that participants answered the interview questions honestly and had the potential to reflect their candid views to answer to the best of their ability.

Delimitations of the Study

To focus the research on creating a model of tertiary vocational education, certain elements of the study were delimited by applying definitive parameters. First, only the country of Kenya was selected for this study. Rather than include other Sub-Saharan countries, this parameter was put into place given the variance in tribes and culture within Kenya. Given the incredible ethnic diversity in Kenya alone, other countries were delimited to focus on the creation of a model of tertiary vocational education specific to the needs of vulnerable Kenyans. Second, participants were further delimited by their professions. This parameter was put into place to ensure the participants had knowledge or experience regarding tertiary education and vulnerable learners. Therefore, only the professions of educators, noneducators, and mentors were considered for this study.

Limitations of the Study

This research was limited by finances and time as it is conducted in pursuit of partial fulfillment of a Doctor in Philosophy and would ideally be conducted over a longer period. In-person interviews were not always be plausible considering the distance and proximity of the researcher (United States) to the participants (Kenya). Finally, as mentioned by Creswell and Creswell (2017) information that is filtered through the view of participants in a location that

might be different from their natural setting, such as home or school, and the researcher's presence might result in biased responses ultimately limiting the study.

Theoretical Framework

This study was based upon the synthesis of current models, approaches, and theories to create a model of tertiary vocational education in Kenya. The framework of this model was based on a conjecture that this approach can produce far-reaching change while invoking current theoretical frameworks synthesized within a Kenyan context. More specifically, the study sought to construct a disruptive model of learning within the context of an accessible, experiential, and culturally appropriate learner-centered environment.

Learner-Centric Approach

The effects of poor compulsory school experience stemming from low attendance and lack of learner-centric educational content in Kenya may hinder the quality of life as well as high levels of unemployment for generations to come with a particularly negative effect on vulnerable populations (Oranga et al., 2020). Expanding the Kenyan curriculum to encompass learner-centric content is one means to ensure that learners are actively engaged in the material. Learner-centric content is specific to the learner's interests, allowing them to engage and enjoy what they are exploring. As stated by Tierney and Lanford (2016) if a learner enjoys the task in which they are engaged, they are more likely to retain and understand the content. When a learner retains and then understands the material, they are often empowered to expand their learning by utilizing that same content in their daily lives (Tierney & Lanford, 2016).

Experiential Learning Theory

If the learner's needs are satisfied through the curriculum, and they feel that the curriculum is relevant, the learner is most likely to be intrinsically motivated (Skinner, 1990). In

applying Kolb's experiential learning theory, learners learn how to learn, matching many of the objectives stated within the UN's Development Goals (Kolb & Kolb, 2009, 2013). Experiential learning involves recursive approach in which experiencing, reflecting, thinking, and acting can allow learners to improve their ability to learn (Kolb & Kolb, 2009). Furthermore, as Kolb and Kolb (2009) stated, "experiential learning theory hypothesizes that learning style is situational, varying in response to environmental demands" (p. 15).

Social Cognitive Theory

Bandura further supports the experiential style of learning through his social cognitive theory. The Social Cognitive theory holds that learner-centric educational designs benefit by analyzing the interactions between the learner's personal, environmental, and behavioral determinates (Bandura, 1986). Collectively, social cognitive theory regards the connection between the learner's backgrounds, beliefs, and learning preferences and the influence of environmental and behavioral variables (Bandura, 1986). Embracing the idea that all Kenyans can learn requires educators to embrace the idea that all learners learn differently.

Disruptive Innovation in Education

As stated by Clayton Christensen (Christensen, 2006; Christensen et al., 2005, 2011, 2013), a completely new and 'disruptive' model of thinking must be considered where novel approaches must be devised and tested to determine successful alternatives. Christensen coined the term *disruptive innovation* to refer to a transformation in a complex market in need of a significant change that produces a convenient, accessible, and affordable solution (Christensen et al., 2011). One example of disruptive innovation outside the educational lens is the creation of the North American company TurboTax. Prior to TurboTax, tax consultancy was expensive and inaccessible for many consumers. Through the development of TurboTax, middle and low-

income consumers now had access to tax consultancy at a fair and reasonable price. Ultimately, this change transformed how the North American public viewed tax consultancy (Christensen et al., 2011, 2013; Horn et al., 2015).

Christensen's model of disruptive innovation can be applied to the development of a new model of tertiary education potentially transforming how the public views education while maintaining a low-cost and convenient change for young adults. The sustainability of a disruptive model of education is underpinned by a learner-centered curriculum (Carmody & Baer, 2009). Christensen's model of disruption means more than simply integrating computers in a classroom or repurposing content creatively (Carmody & Baer, 2009; Christensen et al., 2011; Khan, 2012). Instead, disruptive education involves the creation of an innovative model of learning to inspire intrinsic learning. When learners are intrinsically motivated, the work becomes the stimuli that allow them to follow through and maintain engagement—even enjoyment—in their tasks (Christensen et al., 2011). When learners enjoy what they are doing, they are more likely to retain and understand the content (Tierney & Lanford, 2016). When learners understand the content, they are often empowered to expand their learning by utilizing this content in their daily lives (Tierney & Lanford, 2016). Using the content in everyday life means the content is relevant or learner centric (Carmody & Baer, 2009; Christensen et al., 2011; Khan, 2012). For content to be relevant, the learner must be inspired by the content and the content must be presented in a manner that makes sense. For content to make sense, it must appeal to students' diverse learning styles.

Theory of Multiple Intelligences

Increased attention to the development of a model based on learner-centered learning, when applied to developing basic competencies and 21st-century skills, all benefit from

articulating and understanding that intelligence comes in diverse forms. The recognition and willingness to work with diverse intelligence ultimately make for more meaningful learning. Developed by Howard Gardner, intelligence can be defined three ways (Gardner, 1983, 1993, 1999). First, as the ability to create an effective product or service that is culturally valued. Second, as the set of skills that make it possible to solve real-world problems. Finally, intelligence can be defined as the ability to gather new knowledge to create a solution for a problem.

Recognizing diversity within the definition of intelligence, in and of itself, permits learners to drive their own learning. Through inquiry, collaboration, and research learners can create and produce results reflective of their own understanding and knowledge (Bell, 2010). Underpinning the diverse meaning of intelligence, Gardner claims that nine modalities of human intelligence types exist, and each learner has a unique profile of these intelligence types (Chen & Gardner 2018; Lunenburg & Lunenburg, 2014). These intelligence types include logical, language, spatial, musical, kinesthetic, interpersonal, intrapersonal, and naturalist (Gardner, 1993). The ninth intelligence type, existential, was later added by Gardner (1999). Of the nine styles of intelligence, generally, only two are valued within many educational institutions: logic and language (Aftoni et al., 2021). An educational model framed around a more inclusive pedagogy of multiple learning styles and varying intelligence could bridge the tertiary learning gap in Kenya.

The underpinnings of Kenyan education from a historical, political, structural, and cultural perspective must be understood to develop a more learner-centric model of tertiary education. The literature reveals a significant opportunity to better serve vulnerable youth and improve upon the current Kenyan curriculum. The conceptual model of this study and pursuant

discussion informed how selecting a newly developed model, such as micro-trade, may serve as a viable mechanism to increase employability among Kenyan youth. This study aimed to identify a micro-trade model that, when tested in the future, may serve to ultimately increase employability among young adults. This framework is developed further in Chapter 2.

Definition of Key Terms

The following section establishes sustainable and inclusive concepts important for understanding the perspective of the study: career and technical education, dignity, diligence, disruptive innovation, formal learning, informal learning, learner-centric curriculum, micro-trade, nonformal learning, participatory learning, responsibility, scaffolding, Sustainable Development Goals, technical and vocational education and training, trade or trade based curriculum, transformative learning, Ubuntu, vulnerable youth, and zone of proximal development.

- *Career and technical education (CTE):* CTE courses were designed to provide a competency-based approach to learning occupation-specific skills
- *Dignity:* The variable, dignity, can be defined as worthiness, esteem, or honor as individuals and as members of a community (Henkin, 2019)
- *Diligence:* The variable, diligence, can be defined by careful or persistent effort or work (Bueno & Bright, 2020)
- *Disruptive innovation:* A transformation in a complex market that increases convenience, accessibility, and affordability (Christensen et al., 2011)
- *Formal learning:* Occurs within the confines of training institutions and often leads to recognized diplomas or qualifications

- *Informal learning:* Results from everyday life activities related to leisure, work, or family that are not structured and typically do not lead to certification
- *Learner-centric curriculum:* When the learner's needs are satisfied through a relevant curriculum, the content is often referred to as learner-centric (Carmody & Baer, 2009). This method shifts the focus from the teacher to the learner, allowing their interests and their voice to guide the experience (Gillani, 2000)
- *Micro-trade:* A shorter and more consolidated model of learning in which learners are taught a trade assisting young adults to become employable and marketable in a short period of time. Generally, this model targets those who are in jeopardy of dropping out or who are otherwise unable to continue their formal education
- *Nonformal learning:* Takes place alongside mainstream systems of training and education and does not normally lead to formalized certificates. Nonformal learning can be facilitated within the workplace, and through activities of groups, organizations, and civil society
- *Participatory learning:* Self-directed learning that uses a problem-solving style where the learner engages in a learning community
- *Responsibility*: Pertains to individuals who are disposed to accepting the consequences of their actions and behaviors (Gough et al., 1952). Responsibility can also be defined as the belief of having the real power that either prevents or causes subjective critical consequences (Bugdayci, 2019)
- *Scaffolding:* In the context of learning, scaffolding is temporary support provided for learners to help them achieve their goals. Once learners can complete or master the required tasks, scaffolding is gradually removed (Monteira et al., 2020)

- *Sustainable Development Goals*: Also referred to as the Global Goals, the Sustainable Development Goals (SDGs) were adopted by the United Nations in 2015 as a call to action to protect the planet, end poverty, and ensure all people are peaceful and prosperous by the year 2030 (United Nations Development Programme [UNDP], 2021)
- *Technical vocational education and training (TVET):* Common in colleges, vocational, and technical institutes, TVET is offered to students to provide skills to workers in preparation for industry employment (Khan et al., 2020)
- *Trade or trade-based curriculum:* Seen as an alternative curriculum to learners to provide skills and knowledge to enter a career based in the trades. Trade skills were developed in response to a need for a relevant curriculum for young people who had difficulties engaging with traditional curricula
- *Train-the-trainer model:* An expert trainer in a specific field, skill, or task is asked to train learners or employees to become trainers themselves. These trainers or employees can then train others within the organization using what they have learned (Byington et al., 2020)
- *Transformative learning:* Freire's transformative learning theory states that if learners are given a voice in their community that perpetuates transformational meaning in their lives, then they are given the opportunity to be exposed to a more equal education (Freire, 1970, 1996)
- *Ubuntu:* An African view characterized by an emphasis on sharing, compassion, respect, empathy, commitment, almsgiving, care, sensitivity to the needs of others, consideration, kindness, and patience (Msila, 2008). Ubuntu is often seen as a value system of human

behavior in the context of the treatment of others, including treatment of the governed by political leaders (Dillard, 2009; Ngubane-Mokiwa, 2016; Sakiemi & Whetho, 2013)

- *Vulnerable youth:* Youth subjected to factors such as lack of access, severe chronic illness, poverty, hunger, inadequate clothing or shelter, deficient caretakers, disabilities, or direct experience of physical or sexual violence (Skinner et al., 2006)
- *Zone of proximal development:* Developed by Lev Vygotsky, the zone of proximal development is the distance between a person's actual level of development and their level of potential development

Significance of the Study

The analysis and findings of this study could contribute to the current literature by creating a model of tertiary vocational education in Kenya. Current literature was investigated to understand the effectiveness of current compulsory and tertiary schools. The synthesis of this literature helped identify the current gaps in current tertiary programs, such as TVET, and to develop a model of tertiary vocational education in Kenya. Interview responses from Kenyan educators, noneducators, and mentors overlaid the literature to create poignant and effective model of tertiary instruction.

Chapter Summary

This research study was selected to pursue and understand the elements of a new model of tertiary education. This study poses the question of how, if at all, can an intrinsically motivating environment through the practice of a more learner-centric approach to education be constructed through a new model of micro-trade. The future of vulnerable Kenyans is often predetermined by joblessness, marginalization, and poverty (Lombo, 2015). Therefore, micro-trade promotes a learner centric environment of tertiary education for young adults leading to

their economic stability and employment. In Chapter 2, an all-inclusive review of the literature will detail background history of education in Kenya, youth unemployment, alternative global models and practices in secondary education, and suggested theoretical approaches to learning.

Organization of the Study

This study has been organized into five chapters. In Chapter 2, a comprehensive literature review discusses theoretical approaches as they pertain to Kenyan education. The chapter will also provide empirical research on the effectiveness of current learning models. Chapter 3 outlines methodological procedures, including the research design, population, sample, sampling procedures, human subject considerations, measures and data collection, procedures, and analytical techniques. Chapter 4 reports the results generated for each research question as they pertain to this study. A discussion of the key findings as well as recommendations for further study are presented in Chapter 5.

Chapter 2: Literature Review

A review of tertiary education in Kenya coupled with unemployment in Kenya suggests significant inadequacies that point to the need for a model of tertiary vocational education in Kenya. The literature suggests this is possible by examining past and current learner-centric educational models and initiatives underpinning many traditional tertiary learning environments in Kenya. This review discusses the following key themes identified in the literature: background history of education in Kenya, high and inevitably increasing unemployment rates among young adults in Kenya, alternative models and practices in secondary and postsecondary education and learning frameworks relevant to the design of a new model of tertiary education. Following the context of this study, a synopsis of the chapter will conclude this portion of the study.

Background History of Education in Kenya

Kenya's commitment to improving the system of education and creating a more learner-centric environment is evident in a series of reforms undertaken since the country's independence in 1963 (Akala, 2021). These commissions and reforms range from the implementation of a more Africanized curriculum, revisions of national Kenyan education policies and objectives, an established second University, curriculum vicissitude, and a more inclusive approach to learning (Republic of Kenya, 1964, 1981, 1988). Several of these notable reforms have been led by the commissions and reports in Table 2.

Table 2

Timeline of Kenyan Commissions and Reports

Commission/Report	Description
Ominde Commission 1964	• Sought to reform colonial education • Laid the foundation for Kenyan education postindependence (Alwy & Schech, 2004; Ojiambo, 2007)

Commission/Report	Description
Ndegwa Commission 1971	• Assessed working conditions of civil servants • Outlined educational goals to support the overall educational development • Recommendations imbricated the Ominde Commission, underlining social equity and national unity (Ojiambo, 2007).
Bessey Commission 1972	• Recommended a series of curriculum reforms including the establishment of parent teacher associations and the abolishment of racial segregation • Provided motivation for further reforms in the 1970s including the revision of primary school syllabi and emphasis on practical curriculum focused on thinking and reasoning (Kamau, 2014)
Gachathi Report 1976	• Responded to high unemployment rates and sought to meet socio-economic needs • Recommended pre-vocational, technical, and practical education institutions • Found it necessary to fold vocational curriculum into secondary education institutions (Ojiambo, 2007).
Mackay Report 1981	• Initiated a new, 8-4-4-system of education (8 years primary, 4 years secondary, 4 years postsecondary) • Investigated and then established Moi University, a second university in Kenya after the University of Nairobi, intended for vocational training (Kamau, 2014)
Kamunge Report 1988	• Aimed to improve educational relevance, cost, and financing during the time when instructional materials were inefficient, adversely affecting the quality of teaching and learning • Educational cost sharing was established leading to a substantial withdrawal of government educational spending • Education became quite expensive resulting in a massive decline in primary school enrollment (Republic of Kenya, 2004)
Koech Report 1999	• Proposed Totally Integrated Quality Education and Training (TIQET)

Commission/Report	Description
Koech Report 1999	• TIQE examined ways of enabling the education system to facilitate social responsibility by accelerating industrial and technological learning • Cost implications lead to the demise of this report and few recommendations were adopted to improve the overall curriculum in Kenya (Akala, 2002; Republic of Kenya, 2005)

Despite the several transformational attempts, scholars such as Muricho and Chang'ach (2013) are of the view that Kenya's changes to education are duplicitous. Rather than achieving many of the intended reforms, Muricho and Chang'ach contend that these reforms have perpetuated more challenges. These challenges include a decrease in secondary school graduation rates, ultimately contributing to high unemployment rates. To ensure understanding of how these reforms have contributed to the overall evolution of education, an overview of Kenya's scholastic historical timeline is imperative.

Education in Kenya Prior to Colonization

Prior to British colonization, learners were taught survival skills that ensured safety and protection from predators, acquisition of food, and abundant shelter, often referred to as indigenous education. Indigenous education and indigenous knowledge have been diversely contextualized by assorted scholars. Nakashima et al. (2000) argued:

> Societies worldwide have always developed extensive and useful sets of knowledge which have been derived from the local environments in which people live and which guide them to survive within those environments. Such social capital is present in all societies and has been developed over generations. (p. 11)

Kothari (2007) stressed that the transmission of indigenous knowledge corelates directly to the connotation of indigenous education:

> Co-terminus terms such as indigenous knowledge, and local knowledge generally refer to the long-standing information, wisdom, traditions and practices of certain indigenous peoples or local communities. In many cases, traditional knowledge has been orally passed for generations from person to person. Some forms of traditional knowledge are expressed through stories, legends, folklore, rituals, songs, art, and even laws. (p. 4)

Indigenous education strengthened cultural continuity as knowledge was passed on from one generation to the next. This continuity ensured the survival of the emotional, spiritual, and mental and physical health of the cultural unit.

Indigenous Kenyan education rested on the holistic approach of developing the whole child and was embedded with intellectual, physical, and attitudinal training in hopes of developing well-rounded adults. This curriculum was rooted in practical applications and included games, physical activities such as running and wrestling, cooking, farming, hunting, dancing, carpentry, and marriage counseling intended to prepare youth for their upcoming roles in society (Adeyemi & Adeyinka, 2002; Nsamenang & Lamb, 1994). In addition to these fundamental skills, learners were taught unity and consensus within their own tribal society in hopes of perpetuating communal living intended to prepare youth for adulthood, focusing on the achievement of high community status (Merriam, 2007).

Rather than having one teacher, mentor, or trainer, every member of the Kenyan community had a hand in contributing to the educational upbringing of a learner. In turn, the learner was expected to perpetuate their own culture by passing on the same traditional learning to their offspring. Prior to colonization in Kenya, schools were places where learners were taught

cultural African philosophies and beliefs such that learners grew into responsible and diligent leaders within their community (Ntarangwi, 2003).

Ubuntu and Harambee. African core philosophies shared by Kenyans such as utu, munto, mondo, or more commonly known as Ubuntu, showcase a few examples of overarching cultural values, systems, and beliefs practiced within many Sub-Saharan communities and systems of education (Lutomia et al., 2018; Ngubane-Mokiwa, 2016). Ubuntu, or the Kenyan cultural practice of *Harambee,* meaning to complete a goal or task together as a community, are cultural practices intended to pull one another together and teach each other how to help the community in times of abundance or in times of need (Lutomia et al., 2018; Ngubane-Mokiwa, 2016). These cultural and educational values of Ubuntu and Harambee drove introspection while encouraging individuals to be lifelong learners. These cultural practices are underpinned by values underlying many Kenyan educational philosophies (Higgs & Smith, 2002):

> The adult person in Ubuntu communities is expected to unconditionally accept responsibility. Responsibility is the commitment that one has in the fulfillment of one's obligations according to cultural ethics. The values that one upholds and the extent to which one exemplifies these values in society influence the conferment of dignity. In Ubuntu societies, diligence is highly valued. A family with members that are known to have this attribute is highly regarded in society. (p. 20)

Ubuntu and Harambee remain examples of Sub-Saharan learning largely embedded within the Kenyan culture (Nafukho, 2006). These cultural philosophies often reside in memories of elders or older members in local community villages and can be traced back to the works of ancient African philosophers, such as Odera Oruka, Robin Hountondji, Ki-Zerbo, and Julius Nyerere (Gyekye, 1987; Nafukho, 2006). According to Nafukho, these Kenyan traditions and ways of life

emphasized communal harmony and played a great role in the way education was delivered to learners.

Education in Kenya During Colonization

Once colonized, British missionaries of various denominations and backgrounds were determined to set up schools for Kenyans. The primary goal of British missionaries was to make Kenyans become catechists in hopes of converting them to a more colonial way of life. Many British missionaries disapproved of Kenyan tribal traditions and prohibited many native Kenyan cultural teachings such as Harambee. The hope of these missionaries was to ensure that British religious formation and character-building was instilled within the Kenyans school systems.

According to historians (e.g., Ngubane-Mokiwa, 2016) colonialism was contradictory to the way many Kenyans viewed themselves and the way Kenyan children should be educated. These historians argue that the colonial mentality was far from what Kenyan learners needed to responsibly advance themselves in a dignified way within the community. According to Akala (2021), Kenyan education under colonialism was racist, unequal, and discriminatory. This discriminatory approach exposed Kenyan learners to inferior education that ultimately prepared them for menial work and only the hope of some vocational training. Ochieng (1989) elucidates that Kenyans were prepared for unskilled and low-level jobs while colonial education alienated indigenous cultures and instituted the dominance of the British language within Kenyan learning institutions. It has been argued that through colonialism many Kenyans have absorbed imperialist values in school, conditioning them to think of colonial development as a process of detaching any traces of their cultural practices and traditions (Ntarangwi, 2003). Born in Kenya, Mwenda Ntarangwi reflected on these educational experiences:

> When I was a child of school-going age we were never taught to understand ourselves first and then appreciate other cultures; we were taught that our cultural practices were backward, and we had to do everything possible to dissociate ourselves from them. Children in my generation and before were products of a system that was not relevant to our cultural orientation. (p. 217)

Kenyan learners received an education based on the British colonial agenda, and, according to historians, little was taught to foster the success of learners. Colonial educational models often treated Kenyan children as mentally deficient, leaving them with feelings of self-doubt, low self-esteem, and low levels of dignity. Adult Kenyans were often seen by colonists as having the mental capacity of only a 7–8-year-old European child. When colonized, Kenyan people were marginalized and regarded as having no philosophical understanding (Ngubane-Mokiwa, 2016). Both religious persuasion and force were employed to ensure Kenyans would abandon their culture, indigenous knowledge, political structures, socio-cultural systems, and core philosophies (Ngubane-Mokiwa, 2016).

Education in Kenya After Colonization

Achieving independence from the British in 1963, Professor Simeon Ominde was appointed chairman of education in hopes of overhauling the colonial curriculum and permitting traditional Kenyan pedagogical practices to surface (Ominde, 1964). One of the most pressing reform issues Ominde found was the disparity in colonial or missionary education compared to that of what Kenyans deemed culturally and educationally appropriate. Ominde determined that education was a hybrid of European standards of teaching, detailing colonial life which was only deemed appropriate for colonists to allow for the advancement of the colonial population (Ominde, 1964). Alongside Ominde, many Kenyan educators found it necessary to implement a

drastic educational shift for their newly independent nation embedded in Kenyan practices and culture (Musita et al., 2018). The escalating number of vulnerable street children in Kenya (Streetman, 1995) indicated the urgency to formalize sustainable action plans to better assist Kenyan learners not meeting basic fluency standards intended to bolster literacy rates and directly benefit the vulnerable and poorest learners.

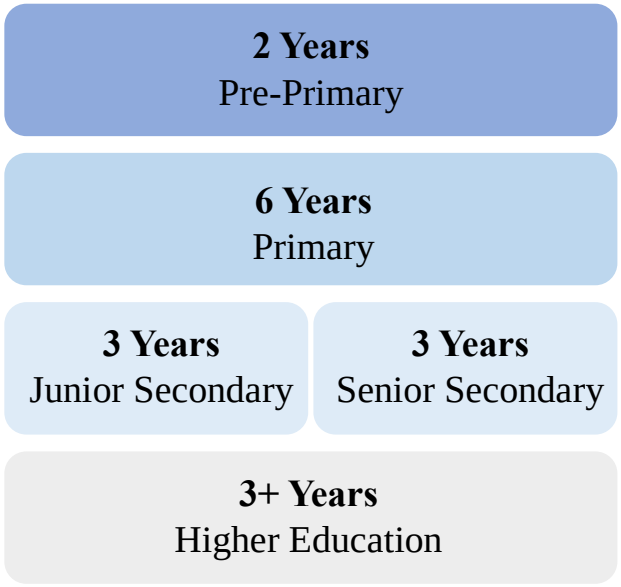
The 8-4-4 System of Education. A new shift of social responsibility, economic productivity, and Africanization became the three pillars of Kenya's new 8-4-4 agenda. In achieving this, compulsory schools parsed the system into 8 years of primary school, four years of secondary school, and four years of university widely known as the 8-4-4 system (Musita, et al.; 2018). With the conclusion of compulsory education, learners were permitted to either proceed to secondary school upon passing the national examinations or join a vocational training institution (Musita et al., 2018). Graduates of 4 years of secondary school then proceeded to the university or other tertiary institutions (Musita et al., 2018).

The 8-4-4 curriculum became inconsistent with the aspirations of the growing nation of Kenya, particularly due to the overloaded curriculum and the stringent examination-focused pedagogical approaches (Akat & Karataş, 2020). Some argued that the system was not only flawed but burdensome to both learners and teachers with its uncoordinated learning and dense content oriented only toward the national examination (Abagi & Odipo, 1997). Limited and misallocated resources, high teacher-learner ratios, community socio-economic factors, and lack of quality teacher training were noted as major impediments of the 8-4-4 system (Abagi & Odipo, 1997; Bunyi, 2013; Momanyi & Rop, 2019). As a result of these educational impediments, quality Kenyan education was compromised ultimately leading to learners who suffered (Abagi & Odipo, 1997; Bunyi, 2013; Momanyi & Rop, 2019).

The 2-6-6-3 System of Education. In the year 2017, the Ministry of Education inaugurated the 2-6-6-3 policy to help mitigate many disparities within the Kenyan curriculum. This policy aimed to engage the individual competency of learners. The 2-6-6-3 cycle is divided by school year into pre-primary (2 years), primary (6 years), secondary (6 years), and higher education (3+ years), as noted in Figure 1.

Figure 1

Education Model of the New 2-6-6-3 System in Kenya



The CBC System of Education. Launched by the Ministry of Education in 2017, and in conjunction with the 2-6-6-3 system, a CBC was established to promote flexible and specialized opportunities for learners. This CBC system, in which teachers play a critical role in helping learners engage with the curriculum, balances summative and formative assessments. Summative assessments generally evaluate learning at the end of an instructional period and then compare results against a certain benchmark, while formative assessments monitor learning continuously and provide ongoing feedback to the learner. The CBC system seeks to leverage new pedogeological approaches in hopes of empowering learners allowing for economic viability,

environmental integrity, and a just society for the current and future generations of Kenya (Musita et al., 2018). The Ministry of Education anticipated that the reforms would offer learners a pathway to a better life and a more promising future (Ojiambo, 2009; UNESCO, 2020a). Many of these aspirations were thwarted by the school closures of COVID-19.

Educational Setbacks and COVID-19. Globally, more than 190 countries, totaling nearly 1.57 billion children, were out of school during the COVID-19 pandemic (Akat & Karataş, 2020; UNESCO, 2020a). Global distance learning was provided during school closures in some countries, yet nearly 500 million children were excluded from distance-learning options, making their education inaccessible (UNESCO, 2020a). As per UNESCO, nearly 56 million learners in Sub-Saharan Africa live in remote areas not served by mobile networks (Abidjan, 2020). More specifically in Kenya, many well-funded, urban schools were able to provide online learning, leaving poorly funded, rural Kenyan school learners at a disadvantage (Ozer, 2020; Römer, 2020; UNESCO, 2020a). During COVID-19 for nearly 10,000 primary and secondary schools, only a small percentage of suburban Kenyan learners were able to access digital gadgets; their rural counterparts had no access, leaving them unable to study and continue with their education (Ngwacho, 2020). For many vulnerable learners living in rural and remote villages, refugee camps, and learners with varying disabilities, COVID-19 closures were a formidable challenge (Mehall, 2020; Yusuf, 2020). One such challenge due to closures was presented to those preparing to sit for national examinations as the risk of learning loss was heightened for these learners (Kathula, 2020; Sheridan et al., 2020). Without a passing score on these national examinations, learners are unable to advance along the learning continuum.

While the long-term academic impact of COVID-19 is still unknown, poor national examination scores and low graduation rates contribute to concerns of impending unemployment

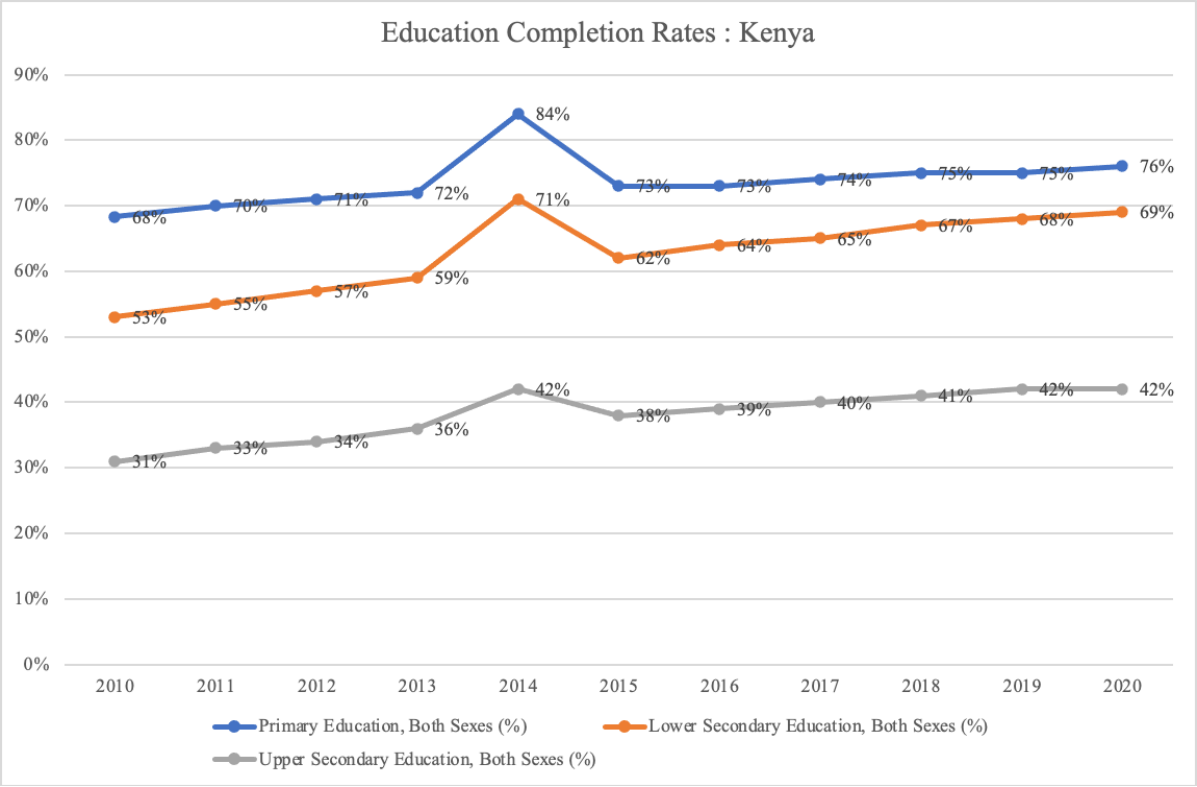
rates among Kenyan youth. Education completion rates among Kenyan learners in primary, lower secondary, and upper secondary schools have increased (UNESCO, 2020b). However, completion rates among learners in upper secondary remain below 50% where more than half of the population of learners in upper secondary schools are not completing the required curriculum and essentially dropping out. Coupled with mediocre completion rates, decreased literacy rates in Kenya underpin an additional dilemma of a rising percentage of unemployed youth.

High and Inevitably Increasing Unemployment Rates Among Young Adults

United Nations statistics (2019) indicate that well over 262 million youth between the ages of 6 and 17 did not attend school in 2019, as noted in Figure 2. Learners aged 6–17 do not meet minimal reading and math proficiency levels. Although the years of compulsory education in Kenya had been extended to year 12, high-stakes assessments contributed to educational disparities including increased grade repetition among many Kenyans (UNESCO, 2020b). As such, failure to pass these assessments increased the probability of learners repeating a grade. These learners often find it difficult to engage in the theoretical objectives posed in the upper-secondary curriculum, as learners are more commonly focused on more practical objectives. Compounding this issue, many families are required to cover direct and indirect costs of schooling such as school fees, shoes, and uniforms (UNESCO, 2020a). Without mathematical and linguistic skills necessary for employment, many vulnerable learners are left in perpetual economic deprivation or unemployment (United Nations, 2019).

Figure 2

Education Completion Rates in Kenya



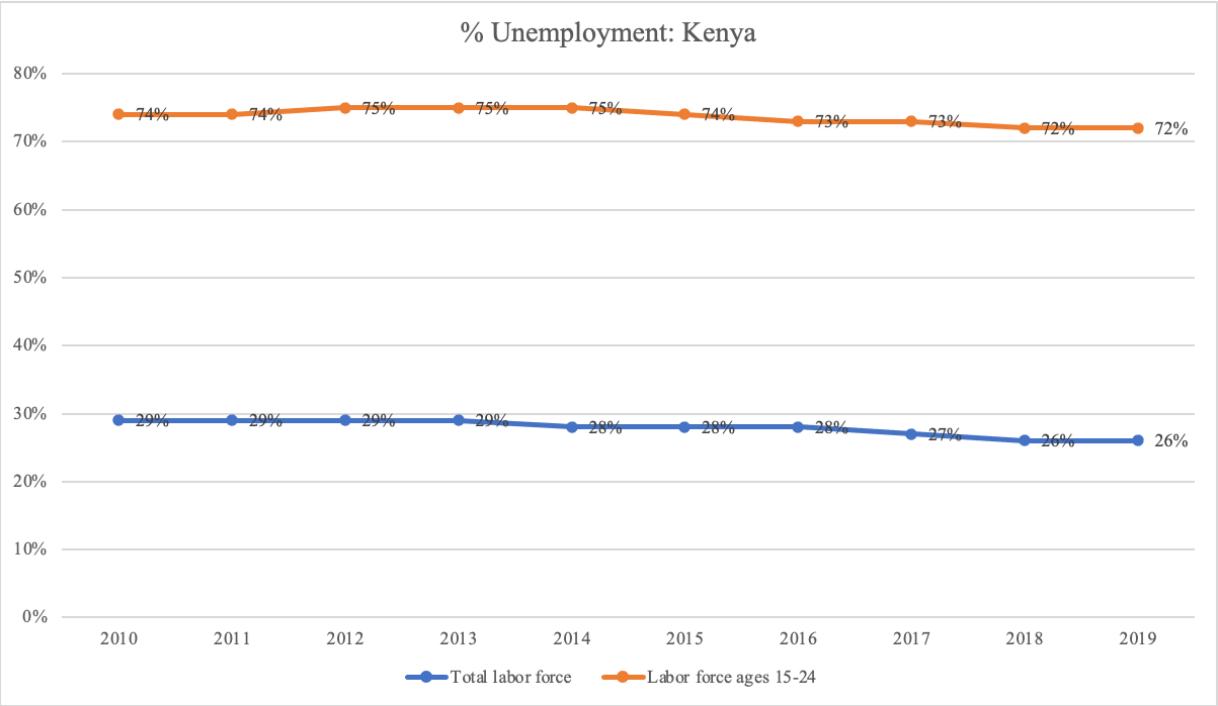
Unemployment in Kenya

As defined by the International Labour Organization (ILO; 2012), unemployment among youth or young adults refers to the share of the labor force who are without work but who are available to work and who are actively seeking employment. In Kenya, youth unemployment is an important policy issue because young men and women today face uncertainty in their hopes of undergoing a satisfactory transition in the labor market. Without a positive transition into the labor market, vulnerable youth are left with damaging effects on communities, society, economies, and individuals themselves. Damaging effects upon these vulnerable youth who are unemployed are likely to ineffectively contribute to the development of their communities and have fewer opportunities to exercise their rights as citizens, as referenced in Figure 3. Furthermore, these vulnerable unemployed youth are seen as customers who often have less to

spend, invest, and save while often having little to no voice necessary to bring about the next generation of change within their communities.

Figure 3

Unemployment Percentages in Kenya



Presented by the ILO (2012), Kenyan unemployment rates have remained steady over the last 10 years, and youths aged 15–24 encompass a large percentage of that figure. Low literacy rates as well as low academic completion rates within the compulsory years of education are two core contributing factors to these unemployment percentages among Kenyan youth. Accumulated academic achievement is fundamental for further intellectual growth as well as social and economic development (UNESCO, 2020a). UNESCO stated that literacy rates are outcome indicators used to evaluate educational attainment to predict the quality of the future labor force as well as to see the effectiveness of an education system. Educational exposure measured by literacy is one of the main determinants of the youth unemployment rate, revealing

a strong link between educational level and unemployment and a major determinant in youth unemployment in Kenya.

According to King (2020), Kenya is a particularly appropriate place in which to investigate questions of youth and the future of their success. While Kenya maintains a youthful population of a median age of 19, Kenyans under 30 comprise nearly 75% of the population and 43% under the age of 15 (Kenya National Assembly, 2010a, 2010b, 2010c; Ministry of Youth Affairs, 2007). The UN predicts that the number of youths is expected to dramatically rise over the next 15 years (Njonjo et al., 2011). More specifically, Kenyan youth with limited educational opportunities or a low aptitude of literacy and basic mathematical abilities compromises their eligibility for employment (Ministry of Youth Affairs, 2007). With a growing trend of the number of youths in Kenya, this unemployment number is also expected to rise (Ministry of Youth Affairs, 2007) in addition to repeated concerns about the radicalization of Muslim Kenyan youth and violent youth gangs (International Crisis Group [ICG], 2012, 2014; Meleagrou-Hitchens, 2013). These concerns were confirmed in the 2007–2008 postelection violence in which youth were reported to have comprised 70% of the participants (Education Development Center [EDC], 2009). The Kenyan National Assembly (2010a) notes the importance of developing a sustainable program to create jobs while engaging the Kenyan youth to prevent recruitment by gangs and ultimately diminishing the number of violent occurrences (Kenya National Assembly, 2010a, 2010b, 2010c). One such sustainable program was instituted by the United Nations and 17 global initiatives were written to tackle the many challenges in existence today. One of these initiatives includes the need for a more robust educational plan to help alleviate high unemployment rates.

Sustainable Development Goals

As noted by the United Nations (2021), the Sustainable Development Goals (SDG) cover an array of global issues that affect all people. The SDGs reaffirm the United Nations' commitment to ultimately end global poverty and are to be met by the year 2030. These SDGs demand equal opportunities for all people and shift the globe toward a positive transformation of health, prosperity, education, human rights, and peace. These 17 SDGs are presented in Figure 4 (United Nations, 2015, 2019, 2020, 2021).

Figure 4

United Nations Sustainable Development Goals

1: No Poverty	10: Reduced Inequalities
2: Zero Hunger	11: Sustainable Cities and Communities
3: Good Health and Well-Being	12: Responsible Consumption & Production
4: Quality Education	13: Climate Action
5: Gender Equality	14: Life Below Water
6: Clean Water and Sanitation	15: Life on Land
7: Affordable and Clean Energy	16: Peace, Justice, and Strong Institutions
8: Decent Work and Economic Growth	17: Partnerships for the Goals
9: Industry, Innovation, and Infrastructure	

The SDGs aim to generate sustainable global change (United Nations, 2019, 2021). More specifically, SDG four creates objectives for equitable, quality education (UNDP, 2021; United Nations, 2019). SDG four necessitates an all-encompassing educational structure to students to ensure inclusive and equitable education while promoting lifelong learning opportunities for all (United Nations, 2019). The United Nations (2020) specified these goals to be obtained by the year 2030. The following is a list of these goals:

- free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes

- quality early childhood development, care, and pre-primary education, as well as quality TVET tertiary education
- increase the number of youth and adults who have relevant skills, including TVET, for employment, decent jobs, and entrepreneurship
- equal access to all levels of education and training for the vulnerable
- youth and adult literacy and numeracy
- knowledge and skills needed to promote sustainable development

Within the context of these objectives, positive educational outcomes in Kenya are visible since the establishment of the 2-6-6-3 curriculum cycle, CBC, and the inception of the SDGs (United Nations, 2019, 2021). The proportion of children out of school has declined from 26% in 2000 to 17% in 2018 (United Nations, 2019, 2021). Analogously, the primary school completion rates increased from 70% in 2000 to 85% in 2019, while the lower and upper secondary school rates rose from 73% to 49%, respectively (United Nations, 2019, 2021). Despite this progress, 258 million children still did not attend school in 2018 (United Nations, 2019, 2021). Of these children, three quarters are in sub-Saharan Africa (United Nations, 2019, 2021). Moreover, these up-trending outcomes were decimated by COVID-19 school closures (Akat & Karataş, 2020; UNESCO, 2020a).

Kenyan youth constitute nearly 60% of the total labor force, yet some 300,000 youths are left behind uneducated and unemployed every year (Wanjiku & Munene, 2020). While policies and global initiatives have attempted to shift the paradigm of high unemployment rates, it is necessary to analyze other models outside traditional tertiary education models (Kanwar et al., 2019). This analysis can help draw attention to positive overlapping successes as well as to the

negative overlapping gaps these models may have in common in the creation of a model of tertiary vocational education in Kenya.

Alternative Models and Practices in Secondary and Postsecondary Education

Secondary and postsecondary initiatives designed to enhance the motivation and self-confidence of learners is inherently important to countries such as Kenya, as they seek to prepare young adults for induction into the national economy. Models of social innovation and tertiary programs such as TVET have brought about some competitive advantages in Kenya, ultimately contributing to the financial and economic gain of young adults (Tjønndal, 2021). The creation of a tertiary vocation education model, requires the analysis of current alternative models and practices while acknowledging their strengths and pitfalls.

Social Innovation

Derived from the Latin word "innovare," innovation is defined as renewing or creating something new. Innovation from a scholarly perspective is thought to originate from Joseph Schumpeter, an economist often described as the father of innovative research (Tjønndal, 2021). The term innovation has since been transformed to include a wide range of fields including political science, welfare, sociology, and entrepreneurship to name a few (Goldsmith, 2010; Ratten, 2015).

Contrary to Schumpeter's perspective on innovation, social innovation does not center around the development of production efficiency or consumer markets, and it is rarely studied from a business perspective. Rather, social innovation takes a creative approach to solve complex social issues (Nicholls & Murdock, 2012). Innovation versus social innovation is best distinguished with the example of the invention of the atom bomb. This invention is defined as innovation rather than a social innovation since the advancement of warfare does not address

unmet societal needs. Attending to previously researched works of social innovation could provide leverage for the creation of a model of tertiary vocational education, and explicitly, a new way of approaching modern economic issues in Kenya (Nicholls & Murdock, 2012). Models of social innovation discussed in this study include traditional apprenticeships, microenterprise, and micro-loans.

Traditional Apprenticeships. Categorically speaking, this study recognizes three overarching forms of learning, useful in the creation of a model of tertiary vocational education in Kenya. These forms of learning are formal, nonformal, and informal:

- Apunda et al. (2017) define formal learning as learning occurring within institutions with structure, often recognized by a diploma or standardized qualifications.
- Nonformal learning takes place alongside the mainstream system of education, is structured, and is often provided through a workplace established to complement formal learning systems.
- Informal learning results from practical everyday life activities related to leisure, work, or family, is not structured, and usually does not lead to the receipt of certification.

According to Apunda et al. (2017), skill development does not necessitate enrolment in a formal training institution. Skill development may occur informally in the workplace where all types of learning styles are recognized such as auditory, visual, and tactile to name a few.

Traditional Apprenticeships (TAs) are commonly defined as the acquisition of on-the-job trade-specific skills while working alongside an experienced craftsperson (ILO, 2012). As Kenya's economy struggled in its capacity to create new jobs, many Kenyans garnered practical and informal hands-on learning through traditional apprenticeships (Balwanz, 2012; Kaane

2014). Furthermore, as reported by UNESCO (2012), TAs are the most cost-effective and flexible informal learning platforms. According to the Kenyan ILO (2012), TAs are by far the most important informal source of practical skills training (ILO, 2012). Cost-effective and practical skills trainings are important as Kenya's economic landscape is best characterized by a large and growing informal labor market, including dressmaking or garment manufacturing, agriculture or agricultural-processing, and street vending (Apunda et al., 2017).

TAs are an innovative avenue for the training of young adults in Kenya, however they are not without challenges (ILO, 2012, Krafft, 2018). One of these challenges is embedded in social stigmas among young adults and the generation of millennials. Many young adults associate TAs with those who are uneducated, unable to gain university admission, and with little or no chance of career development (Aggarwal & Aggarwal, 2021). Another challenge rests on the reluctance of employers to participate in TAs. This reluctance stems from the adherence to additional labor policies, lack of resources, and the fear of inexperienced young apprentices creating an unfavorable business environment. Furthermore, issues ensuring the quality and consistency of TA training can be difficult as these training programs are neither certified nor are they nationally recognized. Additional issues such as poor working conditions, long work hours, and the exploitation of apprentices are shortcomings characteristic to TAs in Kenya (ILO, 2012; Krafft, 2018).

By the same token, Kenyan apprenticeship programs are not accessible to everyone (Filmer & Fox, 2014; Schraven, 2003; Sorensen et al., 2017). Young women often have less access to TAs and their participation is frequently skewed to trades traditionally associated by gender such as tailoring and beauty services. Quite often TA programs are established in urban areas where apprenticeships are offered to young adults with some level of education, excluding

those in lower socio-economic categories, the less educated, and people living in rural villages (Adams et al., 2013). Recognizing these issues, ILO (2012) suggests standardized and measurable apprentice skill standards, increased train-the-trainer type programs, contracts protecting apprentices from exploitation, and exposing women to trades traditionally dominated by men.

Microenterprise. Another alternative practice of social innovation is microenterprise or micro and small-scale enterprises (MSEs). MSEs are defined as small businesses usually financed by a small loan, available to those who generally have no credit history, collateral, or prior employment history. MSEs have served a fundamental purpose in improving economic disparities in many developing countries such as Kenya (Bultum, 2017). MSEs provide a product or service within the community aimed at improving the quality of life for business owners while adding value to the local economy. Historically, MSEs increased income and created jobs to provide a sustainable solution to poverty, unemployment, income inequality, and stagnating economic growth. As stated by Bultum (2017):

> MSEs are believed to be the engine for the development and growth of any economy in the world. Without the proportionate growth in productivity the poor are getting poorer and poorer whereas the rich are getting richer and richer. In other words, the gap between poor and rich are becoming wider and wider. The emergence of MSEs have highly contributed to the local economic development and countries overall growth. (p. 46)

With a large informal sector employing over 80% of the labor force, Kenya has leaned on the production and service of MSEs (Balwanz, 2012; Kaane, 2014). MSEs, such as tailoring and dressmaking, are among the highest economic undertakings with the greatest potential for growth requiring knowledgeable and skilled workers willing to acquire an understanding of their

craft on the job (de Haan & Ferreira, 2006; ILO, 2012). Encouraged by the Kenyan government, MSEs were initiated to stimulate entrepreneurship as well as to expand small businesses (Abebe & Gebremariam, 2021; Jones et al., 2018; UNESCO, 2012).

MSEs are not without flaws, leaving small business and entrepreneurial government policies under scrutiny. The cause of this scrutiny and criticism is either one of two factors. First, MSE policies are often adapted from more developed countries (Herrington & Kelly, 2012). Second, the chances of survival and sustainable performance of MSEs vary greatly between countries (Olawale & Garwe, 2010). The question of why many small-scale enterprises in developing countries fail to survive or perform continues to attract attention within the literature. As studied in Ethiopia by Bekele and Worku (2008), 500 MSEs were selected and studied over the term of five years. Initially successful, these MSEs had a greater potential to sustainably alter the performance of small businesses, but also noted five key predictors of survival; adequate finances, employees who are educated, employees with strong managerial skills, employees with technical skills, and a business model capable of converting profits to investments.

Microfinance. The concept of microfinance has existed in one way or another within many societies while the formal historical documentation of microfinance dates to the mid-1800s. It was then that writer and abolitionist Lysander Spooner described the benefits of small loans for the poor to alleviate poverty (Khandelwal, 2007). More recently, Muhammad Yunus, recipient of the Nobel Peace Prize in 2006, was recognized for his contributions and development of microfinance.

MSEs often involve initial start-up costs requiring a loan or microfinance. The variables defining microfinance originate from a combination of impoverished populations, money, loans, and modern banking systems (Jiang & Thagard, 2014). Microfinance loans provide loans of

small amounts to those who have otherwise been dismissed by larger commercial banks (Sengupta & Aubuchon, 2008). Microfinance institutions (MFIs) aim to improve access to financial services to the poor, many times without requiring collateral, while also being financially sustainable (Hermes & Hudon, 2018). The microfinance bank model is such that a small number of people are granted a small loan amount requiring weekly repayment (Goetz & Gupta, 1996). First-time borrowers are usually loaned less than $100 USD and require weekly payments, including a per annum percent ranging anywhere from 10% to 60% (Morduch, 1999; Reddy, 2007). Once accepted, all borrowers must agree to the terms of the loan and to the bank's rules. Assuming all borrowers repay their loans, future credit is extended. However, if one borrower defaults on their loan all borrowers within that group assume responsibility of the loan and run the risk of being denied access to any future loans (Khandker, 2005; Yunus, 2007).

Microfinance is not without flaws and trepidations among unstable governance, politics, exclusion as it pertains to accessibility of MFIs should be noted (Hameed et al., 2017; Hermes & Hudon, 2018; Sengupta & Aubuchon, 2008). Many countries instituting microfinance loans operate in politically weak systems contributing to the lack of sustainability and potentially the demise of MFIs.

Technical and Vocational Education and Training

The definition of TVET has shifted alongside the variables of technology, unemployment, sustainability, and skillsets. One change, as noted by UNESCO (2010), was the shift to TVET rather than the original "TVE" terminology. Incorporating the term training into TVE, allowed for a broader concept of learning rather than the initial "TVE" model. In addition, TVET encompassed a far more varied world of skills where "TVE" was simply provided in public secondary and postsecondary institutions (Subrahmanyam, 2019).

Outside the spectrum of social innovation, TVET institutions offer individuals the skills necessary to master a trade regardless of educational background or employability, enabling many to overcome economic disadvantages (UNESCO, 2010). Defined by UNESCO (2010), TVET is comprised of the education of training and skill development pertaining to a range of various occupational fields and services. Within the context of either formal or informal education, TVET curricula provide broad-based technological knowledge and the ability to contour continuing education based on the scope of trade an individual seeks to pursue (Tripney & Hombrados, 2013). Manley and Zinser (2012) mention TVET programs bring learning to life in which learners are expected to present, transform, extend, collect, select, and analyze knowledge.

TVET is anchored in the learner-centric philosophical approach of propelling the young adults toward a sustainable entrepreneurial skillset (Zedan, 2021). To collectively harness the standards of the SDGs and to recalibrate educational needs to include innovative and entrepreneurial objectives, a paradigm shift is necessary. Lifelong learning, systematic training, and flexible education must be incorporated to anticipate the demands on workers looking for entrepreneurial leadership roles and tasks. The success of TVET depends on its recognition of being an economic growth contributor, generator of jobs, and advancement in gender equality (Zedan, 2021). Individuals must be provided with opportunities to improve the overall gains of the sustainable development goals as stated by Zedan (2021):

> Investment in continuous skills development will be critical to ensure that technologies and artificial intelligence can be properly harnessed in sectors that may be automated in the future and to identify those that will continue to require hands-on human expertise. This includes interpersonal and soft skills like communication, social and emotional

> skills, higher cognitive and technological skills, as well as teamwork and team-building abilities, and the changing trends of consumer habits. Tailored training related to social media, and education through simulation training will also build a sustainable, well-trained, and supported workforce. (p. 44)

UNESCO's 2001 Revised Recommendations changed the target of TVET to the individual instead of the economics. This new shift conceptually changed the focus of TVET as more of a transformative and individual structure of work. According to UNESCO, sustainable TVET programs do not presently adopt societal structures and current work; rather, they aim to transform and challenge societal structures and current work. This transformation implies that TVET should be geared toward perpetuating responsible professionals that foster and demand just employment (Subrahmanyam, 2019).

Although well intended, TVET programs in Kenya are not without issues. As noted by UNESCO's Institute for Lifelong Learning, TVET is currently failing to meet many of the intended objectives and requires immediate reform. Some of these failed objectives include lack of contribution to overall societal goals, high percentage of unemployed young adults, and lack of sustainability (McKinsey & Compnay, 2012; OECD, 2012; UNESCO, 2013). Concerns regarding youth unemployment have renewed interest in TVET policy reforms (UNESCO, 2012). McGrath, along with several other experts, calls for profound transformations in the way TVET is funded, organized, governed, and conceptualized.

As mentioned by Manley and Zinser (2012), the lack of many basic skills embedded within TVET can hinder the success of young adults entering the workplace. A literature review conducted by Busaka et al. (2021) suggested embedding soft skills within the TVET curriculum such that a broad set of skills, competencies, behaviors, attitudes, and personal qualities allow

students to effectively navigate within their environment. Moreover, the OECD (2015) grouped soft skills into three categories: learning skills, literacy skills, and life skills. Learning skills directly address creativity, critical thinking, communication, as well as collaboration (OECD, 2015). Literacy skills, as defined by the OECD, assist a learner in gleaning knowledge of information literacy, media literacy, as well as literacy in technology. Finally, life skills are seen as skills to develop flexibility, initiative, leadership, social skills, and productivity (OECD, 2015). Documented in the Basic Education Curriculum Framework, Kenya refers to soft skills as core, generic, and key competencies defined as a collection of values, attitudes, and knowledge (Kenya Institute of Curriculum Development [KICD], 2017). Integration of these soft skills in post compulsory curriculums, such as TVET, could favor increased rates of employment. Soft skills allow for the integration of skills and knowledge, as the workplace tends to be flexible and more problem oriented. Folding soft skills into secondary or postsecondary learning environments can be accomplished by instituting higher-order thinking (HOT) skills (Manley & Zinser, 2012). HOT skills are interpersonal and sequential thinking skills often built through informal learning environments.

Consensus among authors acquiesce that TVET is a low priority for many Kenyan governments and is severely underfunded leaving a lesser option for vulnerable learners in the formal education sector (Fayobi et al., 2017; Krafft, 2018; MoHEST 2014; Oviawe, 2018;). Authors agree that successful TVET reform entails the prioritization of TVET education policies as well as greater investments in vocational education requiring Kenyan governments to revamp already deteriorating TVET training centers and institutions (Sorensen et al., 2017). The overall priority and image of TVET must also be enhanced such that TVET programs are seen as less as a ‘backup plan’ and more as a pathway to economic health (Oviawe, 2018). TVET programming

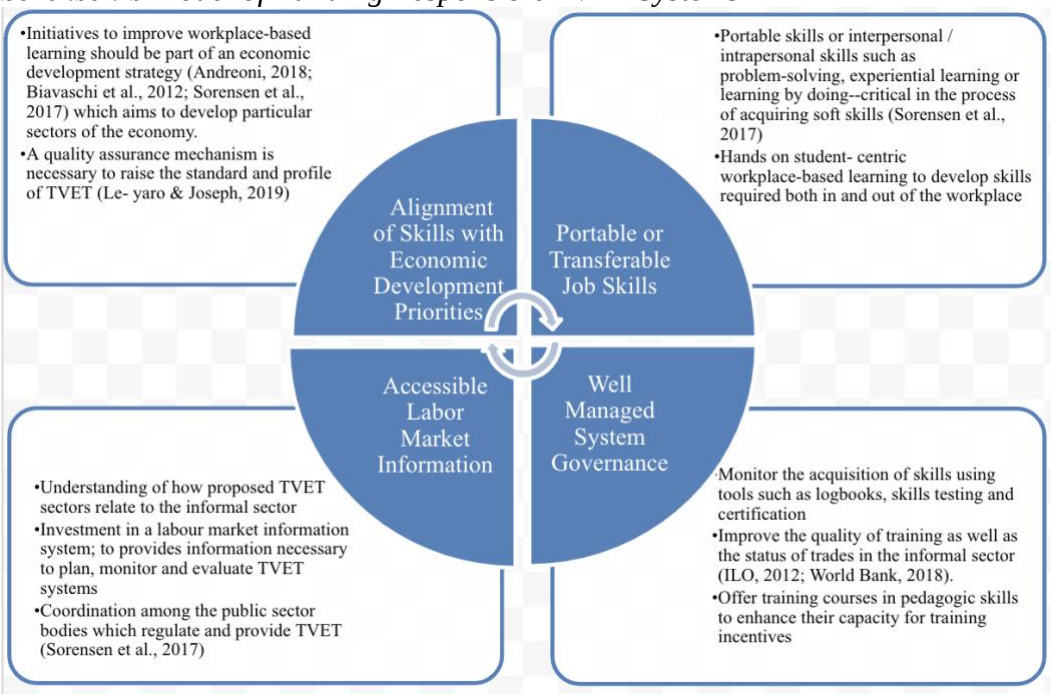
opportunities should also be provided beyond already existing urban communities, allowing access to vulnerable learners seeking future employment (Datta et al., 2018; Filmer & Fox, 2014; Sorensen et al., 2017).

Literature written by Sorensen (2017) proposed that both hands-on learner-centric learning environments, as well as skills development programs, are a key component to increasing the employability of vulnerable youth. The knowledge and understanding of basic education are an essential requirement for the success of hands-on learning through TVET and should be folded into informal learner-centric skills development programs. The literature concurs that low academic proficiency rates in compulsory education undermine the skills young learners can glean from TVET or other supplemental and informal apprenticeships (Fayobi et al., 2017; Krafft, 2018; Oviawe, 2018; Palmer, 2020; Sorensen et al., 2017). The incorporation of basic education, such as language and mathematical proficiency, should be a fundamental prerequisite embedded within any TVET curriculum. To ensure vulnerable youth are set up to be empowered, the amalgamation of these proficiency skills should be considered.

The culmination, or triangulation, of the social innovation models brings to light current TVET practices. Adapted from the model of Building a Responsive TVET System, Sorenson et al. (2017), argues that four elements are essential in building a responsive system. These four elements include transparent labor market information, a well-managed system of governance, alignment of skills with economic development priorities, and the development of portable skills or skills that are transferable from job to job. An outline of these four elements along with literature highlighting these elements is outlined in Figure 5.

Figure 5

Sorenson's Model of Building Responsible TVET Systems



Note. (Blue) with Literature Review Annotation (White Background)

Relevant Learning Theories and Frameworks

Traditional school systems often do not teach "learning to learn" skills, disabling learners from making progress as "learning individuals" while depriving them of becoming self-driven and independent. This idea of learning to learn is critical to ensure learners can adapt to emerging needs of the economy while navigating their lives productively. The pragmatic nature of education requires viable working solutions for learners while providing sustainable opportunities for those who are "vulnerable to unequal developments" (Bozkurt, 2019, p. 510). The World Bank (2020) highlighted that "failure is common, and success is often a result of experience and learning from past failures" (p. 1). The World Bank (2020) further pointed out that "education systems must confront issues of inequity front and center. They must also

prepare multi-modal responses, capitalizing on existing infrastructure and utilizing a combination of different learning mediums to ensure students are engaged and learning" (p. 1). The literature suggests that a model of tertiary vocational education in Kenya can be achieved through the analysis of viable and sustainable theoretical frameworks (Christensen, 2011; Giorgi & Bruni 2015; Goodall, 2018; Rivenbark & Jacobson, 2014). Existing frameworks, such as disruptive innovation in education, learner-centric education, scaffolding, transformative learning, and CBCs have contributed to the literature. The proceeding section will discuss the significance of each of these theoretical frameworks as they apply to the development of a micro-trade model.

Disruptive Innovation

Born in the industrial age, the traditional model of education takes a one-size-fits-all approach utilizing a teacher as a transmitter of information to a learner (Smith et al., 2019). Once the learner verifies receipt and adequate processing of information, as determined by the instructor the learner is issued a passing mark or grade (Christensen, 1997; Khan, 2012; Smith et al., 2019). This pattern generally continues throughout the compulsory and possibly tertiary years of learning, until the learner is certified and then transferred into the work environment.

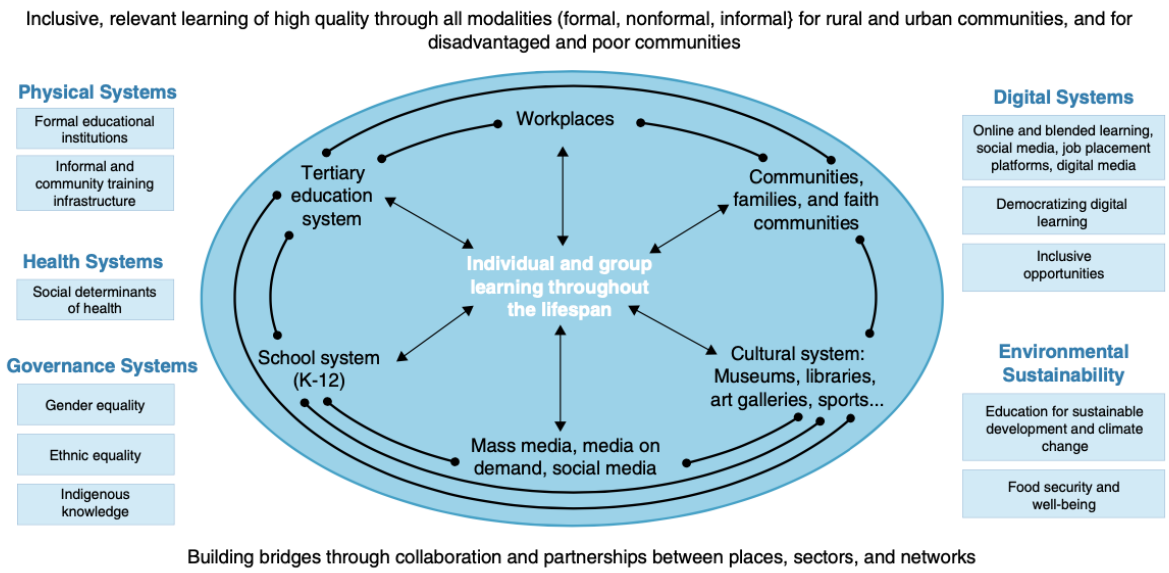
Many acquiesce that to break this traditional approach, repurposed curriculum or the integration of technology can serve as a new and alternative means for learning. Christensen (2011) juxtaposes this notion in his model of disruptive innovation. The theory of disruptive innovation states that markets are truly disrupted when a simple and innovative idea is brought to a wider set of buyers at an affordable price When translated to education, disruptive innovation seeks to enhance, engage, and promote a sustainable learner-centric environment to all learners while transforming how the community views education (Carmody & Baer, 2009; Khan, 2012).

Learning Societies. One such alternative approach to learning has been noted in the establishment of learning societies. Effective learning societies seek to enhance learning for all through multiple learning modalities contributing to the development of the community, lifelong learning, and socioeconomic status. A learning society effectively marshals resources to promote inclusive lifelong learning through secondary and postsecondary education, revitalizing learning, facilitating workplace learning, and extending modern learning technologies (UNESCO, 2012).

Lifelong learning is not just another phase of adult education. The move toward a learning society recognizes the interconnectedness of formal, nonformal, and informal learning environments. As with the formal curriculum of schools, universities, technical and vocational education and training institutions, and community education agencies, there is a vital need to form effective partnerships with actors in the public, private, corporate business, and voluntary sectors to adapt and be responsive to change. Indeed, such partnerships that work toward common goals can have transformative educational and social outcomes. Figure 6 offers a visual description of learning societies as they are inclusive of formal, nonformal, and informal modalities of learning.

Figure 6

A Learning Society in an Age of Disruption



Current economic instability among young adults in Kenya underline the need to better understand the reasons for underemployment and unemployment (Demartini et al., 2019). This complex phenomenon is underpinned by two varying frames of thought. On one hand, learners approaching either their tertiary years or their initial employment appointment, should become aware of their full potential to choose a career that is intrinsically motivating. On the other hand, postsecondary, or tertiary institutions such as TVET, should support a continuous refresh of professional skills to ensure quick outplacement or employment. However, these two solution-oriented views are often not imbedded or woven in many postsecondary curricula, ultimately depriving many learners of the necessary training and expertise essential to entering the economic market. To overcome this problem, the flexible model of the Community of Practice (CoP) can be adapted to support career education as well as TVET.

Communities of Practice. Lave and Wenger (1991) defined a CoP as a group of like-minded individuals with a shared interest, craft, and/or profession. This practice-based theory of learning allows interested participants peripheral involvement allowing them to watch without actively participating. Demartini et al., (2019) stated:

> The members share a common interest in a particular domain, and exchange practical experiences to increase knowledge and skills related to their field. In this way the members learn from each other, and also the group develops new potentialities and dynamics. In fact, a CoP can be realized in everyday life through direct contacts in a physical place, but also, thanks to the enabling technologies, at a distance through online discussion boards and newsgroups. Either a traditional forum may be configured as a basic example of CoP, or dedicated frameworks may be set up. (p. 127)

As novices begin to engage with the CoP, they begin to gain experience and build reputation while moving toward membership and full participation distinguishing:

- Experts who have achieved high reputation due to their experiences through peer feedback and assessment.
- Active participants are expected to participate in the exchange of experiences and information.
- Participants start as observers of content and eventually level-up to active participants.

Personal growth is also reflected by community growth: the community itself develops through different levels of interaction among the members, as well as different kinds of activities. Self-development originates with active participation to the community since knowledge is acquired and applied to practical everyday settings and is discussed with other expert peers. CoP is a learner-centric approach focused on learning, rather than teaching.

Transformative Learning

Summarized by Freire (1996), learning is based on a person's own experience, and education plays an active part in the formation of a person's self-identity. Freire's work speaks specifically to a student's ability to develop skills to ask questions, analyze their world, and act on issues that influence and shape their lives. Freire continued by saying that learning helps develop a deeper understanding of how social structures shape the world. In utilizing Freire's transformative learning theory, exposure to learner-centric content allows them to engage in the current environment they live in and improve on their personal circumstances, conditions, and environments (Freire, 1996). Freire spoke of a type of banking model of education where knowledge from the teacher is deposited into the learner, creating a cycle of knowledge transfer rather than an act of learning. The expectation of the learner is to acquiesce to the new knowledge and add it to what they already know, rather than learning new ideas by interrogating their personal past and present experiences (Freire, 1970). In agreement with Freire, Goodall (2018) noted:

> The banking model of schooling assumes that knowledge is something which can be transferred from one person (the teacher) who holds it, to another (the student) who absorbs it, unchanged. The teacher stands in a place of authority, as the font of knowledge, to which the student comes, as an empty vessel, waiting to be filled. (p. 605)

Further substantiating Freire, Goodall established 10 characteristics of the banking concept:

- The teacher teaches, and students are taught.
- The teacher knows everything, and the students know nothing.
- The teacher thinks, and the students are thought about.
- The teacher speaks, and the students listen – meekly.

- The teacher disciplines and the students are disciplined.
- The teacher chooses and enforces her choice, and the students comply.
- The teacher acts and the students have the illusion of acting through the action of the teacher.
- The teacher chooses the program content and the students (who are not consulted) adapt to it.
- The teacher confuses the authority of knowledge with her own professional authority, which she sets in opposition to the freedom of the students.
- The teacher is the subjection of the learning process, while the pupils are mere objects (p. 611)

Freire states that in utilizing the banking method, students do not have the ability to intrinsically problem-solve (Dirkx, 1998). The banking method does not give students "here and now" experience to encourage the praxis, or learning cycle, of reflection. Through praxis, students reflect, act, and then transform the world (Dirkx, 1998):

> Knowledge is not viewed as something "out there" to be taken in by the learners. Rather, it arises within the social acts of trying to make sense of novel experiences in the day-to-day of our lives. To be meaningful, what is learned must be viewed as personally significant in some way; it must feel purposive and illuminate qualities and values of importance to the person or group…Through educative experiences, learners engage and confront novel situations which question their existing assumptions, beliefs, values, or images of themselves or the world. Through environments that are both supportive and challenging, learners work together with each other and with the educator to construct visions that are more meaningful and holistic, that lead them to deeper engagements with

> themselves and the world. Through connectedness with community transformative learning leads paradoxically to a deeper sense of oneself as a person. (p. 9)

While meaningful approaches to curricula can be promising avenues for successful and empowered educational, the creation of a model of tertiary vocational education in Kenya, that is learner-centric could initiate a shift in educational paradigms. This study addresses the gap and contributes to this much needed paradigm shift.

Learner-Centric Learning

Intrinsic motivation is critical to ensure sustainability in education. Skinner (1990) believed that perceived academic competence and self-determination positively influence academic motivation while positively impacting performance. In doing so, the learner must reflect on their experiences, use skills to conceptualize their knowledge, problem solve, and make decisions based on the ideas gleaned from their experience. Learners who genuinely believe they can be successful in school often reflect this success in their performance (Fortier, 1995; Skinner, 1990). An intrinsically motivating curriculum often allows learners to engage in the content (Skinner, 1990). If the needs of the learner are satisfied through the curricula, and they feel the curricula is relevant, intrinsic motivation should naturally occur. When learners are intrinsically motivated, they often complete tasks or activities that are of their own inherent interest, not the interest of another individual. When intrinsically motivated, these tasks or activities often become the stimulus that allows a learner to remain on task and enjoy what they are doing (Christensen, 2011). When a learner is actively engaged in this activity and they enjoy what they are doing, learners are more likely to retain and understand the content (Tierney & Lanford, 2016). When a learner understands the material learned, they are empowered to expand their learning by utilizing that same content in their daily lives. Subrahmanyam (2019) delineates

a necessary shift in teacher roles, learner roles, and curricula to facilitate a more learner-centered approach as noted in Table 3 .

Table 3

Changes in Teacher Roles, Learner Roles, and Curricula

A Shift Away From…	**A Shift Toward…**
The teacher is the controller of learning, the expert, the transmitter of knowledge.	The teacher is a guide and facilitator of knowledge, creator of the learning environment, and co-learner.
The learner is passive, the reproducer of knowledge, dependent, and solitary.	The learner is active, producer of knowledge, autonomous, and collaborative.
The curriculum demands facts are memorized, delivery is rigid in time and space, there is a single growth path, and is based in traditional pedagogy.	The curriculum is inquiry-based, authentic, open, flexible, has fluid growth paths and is competency-based.

The utilization of a learner-centric approach to curriculum development means the core content is truly about the learner, requiring the content to be relevant and not centered around the teacher (Maslow, 1943; Smith, 1981).

Scaffolding

According to Bruner, scaffolding is a vital foundation for successful training (Giorgi & Bruni, 2015). Scaffolding gives the support necessary for high achievement by tailoring the content to the interest and pace of learners. Scaffolding is achieved through interactions between the learner and teacher that reflect a flexible growth plan. This allows each learner the time and attention needed to master a particular concept. This flexibility is based upon the student's level of understanding (Giorgi & Bruni, 2015). Scaffolding is best composed in three phases. In the

first phase, the teacher and the learner perform a task together with the teacher's guidance so that the learner understands the steps required for task completion. Once the task is understood, the teacher takes a step back, allowing the learner to attempt the task independently. If the learner needs help, the teacher steps in to assist and possibly give corrections. If the learner is unable to repeat the steps successfully, the teacher may need to recalibrate and slide back to phase one. If the learner is successful in phase two, the teacher proceeds to phase three. Phase three is seen as the teacher monitoring the learner as they are completely independent and intervention from the teacher is unnecessary. The overall concept of scaffolding is that interactive support exists between the teacher and the learner. When support is interactive, the learner can prove to the teacher they have mastered the concept and complete the task with complete independence. The overall intention of the teacher shifts from an authoritative figure to someone who can help the learner become autonomous in their learning (Giorgi & Bruni 2015). Scaffolding can improve learners' confidence and their performance, thereby creating sustainable improvements in their education.

One example of successful implementation of scaffolding is often seen in many trade schools, such as TVET and CTE schools. In a trade school environment, scaffolding is often used in the curriculum. Learners are shown how to perform a job, task, or trade and are assisted until mastery has been visibly proven. Once mastery is evident, the learner can repeat the trade of their craft in the community, developing lasting skills in that craft.

Competency-Based Learning

A CBC focuses on the learner rather than the teacher where the learner is expected to apply skills, attitudes, and knowledge in a real-world environment on a more traditionally defined subject permitting the development of their own individual competencies to advance the

curriculum (Greenhill et al., 1982; Obaydullah et al., 2020). Competency-based learning and instruction are defined as a system of grading, assessing, and instructing a student based on the demonstration of student understanding (Rivenbark & Jacobson, 2014). Burke noted that several White Papers throughout the 1980s assisted in the transition toward a more competency-based model (Burke, 1989, 2017).

Launched by the Kenyan Ministry of Education in 2017, and, in conjunction with the 2-6-6-3 system, CBC standards have been deemed a necessary shift for learners (Burke, 1989; Obaydullah et al., 2020; Rivenbark & Jacobson, 2014). The CBC learning model suggests learners who are otherwise unsuccessful in traditional compulsory or tertiary schools could benefit from a more meaningful and purposeful curricula (Odewumi & Dekom, 2020; Quarshie et al., 2020; Smith et al., 2019; Turkson, 2020).

Context of the Study

The purpose of this study is to create a model of tertiary vocational education in Kenya, that will most effectively create economic opportunity for vulnerable learners. These vulnerable Kenyan learners who are underserved and often dropping out of traditional educational school institutions (United Nations, 2019) were researched by interviewing educators, mentors, and noneducators native to Kenya. A discussion followed the theoretical literature supporting necessary change in tertiary education through the adoption of this new model. In conclusion, a summary is provided at the end of the chapter.

This research is built on the conceptual framework of developing design principles for a micro-trade model. This model intends to create an alternative to tertiary learning for vulnerable learners. In creating this model, this research hopes to identify deeper and more poignant learning experiences for vulnerable Kenyan youth.

Chapter Summary

This chapter presented an overview of the extant literature on Kenyan education, theoretical frameworks for educational change, TVET, and examples of current models of social innovation. From a transformative perspective, learning can be perceived as a fundamentally innovative process that is student-centric and intrinsically-motivating, such that the learning breeds confidence and success and eventually employability. The importance of a learner's confidence and success is globally relevant. More specifically, SDG 4, speaks to vulnerable children in disadvantaged communities at risk of educational exclusion.

This educational crisis has widened with the COVID-19 pandemic. In a report delivered by UNESCO (2020), discussions revolved and considered how, in responding to the pandemic, vulnerable youth within cities and rural areas can transform in meaningful ways that not only protect them from immediate threats but also build resilience. This report by UNESCO (2020) also posited that city stakeholders should rethink urban policies to strengthen their risk preparedness and response capacity by becoming more resilient by making cities smarter, greener, more inclusive, and resilient.

The UN's SDGs formalize the importance of educational inclusivity. SDG 4 promotes educational opportunities as a fundamental human right. The accessibility of this human right is expected to brew confidence for the learner and allow the learner to build a specific database of knowledge. This database of knowledge ultimately shapes how learners participate within their communities giving them a sense of significance and purpose. As noted by Aggarwal and Aggarwal (2021), in times of unpredictability, rapid change, and disruptive technologies, it is important to situate TVET programs to become more flexible, responsive, and student-centric to the learning needs of all learners. Accessible and sustainable opportunities should exist in a

variety of settings, whether formal or informal, and adapt to changing learning preferences among the millennials and digital natives (Aggarwal & Aggarwal, 2021).

While education provides greater access to opportunities and resources for students, lack of education can present lifelong challenges due to the limitations of sustainable employment. The inception of re-entry schools such as TVET has given students some additional opportunities to procure long-term sustainable employment. However, research indicates that accessibility, cost, and duration are some of the contributing factors to high unemployment, lack of sustainable improvements, and eventually lack of student's contribution to society.

A growing body of research suggests that some current models of social innovation, such as microfinance, microenterprise, and apprenticeships have solved complex social issues. These innovative approaches have contributed to the generation of products, services, and models that simultaneously meet social needs and generated new pathways of employment. However, the creation of a model of tertiary vocation education is imperative for Kenyans who do not have access to current social innovation models and are unsuccessful within the normal parameters of traditional education. Findings based on decontextualized data indicate that accessible, low-cost, and short-term re-entry programs for Kenyan dropouts could play an important part of how students become employable while increasing feelings of responsibility, diligence, and dignity. However, there is a need for further studies examining the viability of alternative re-entry program models contextualized within conversations.

Chapter 3: Research Method and Study Design

The purpose of this study was to develop a model of tertiary vocational education in Kenya. In particular, the research sought to create a micro-trade model appropriate during the tertiary years of school in hopes of providing economic stability for young adults in Kenya utilizing the research design, design-based research (DBR). Starting with a brief introduction and review of the research questions, the methodological approach and study design will be outlined. An overview of data sources including population and sampling processes will be explained followed by a description of how data was collected and gathered. This summary of data gathering will include how validity and reliability was captured for instruments and tools utilized and a detailed account of the study's procedures. Subsequent sections address human subject considerations, proposed data analysis processes, and how this study plans to ensure internal validity. The chapter concludes with a chapter summary.

Purpose of Study

The purpose of this study was to create a model of tertiary vocational education in Kenya. Catering to the tertiary years of learning, this model suggests ways to provide a sustainable and learner-centric approach to secondary and postsecondary education. This study was constructed and based on interviews from individuals residing in Kenya with knowledge and experience in the field of tertiary education, such as TVET. Key variations were addressed and woven into this model addressing the current gaps in tertiary programs, such as TVET, and lack of sustainable economic opportunities for young adults in Kenya (Council on Foundations, 2019; UNESCO, 2010; United Nations, 2019). Furthermore, this study created a model that could be tested in the future to see what effect, if any at all, the model has on increasing the economic opportunity of

vulnerable young adults (United Nations, 2019). The study sought to address the following research questions:

- RQ1: What design principles for a micro-trade model will most effectively create economic opportunity for vulnerable Kenyan learners?
- RQ2: What is one model that incorporates these principles?
- RQ3: What factors will insure the testability of this model?

Methodological Approach

The desired outcome of this research study was to create a model of tertiary vocational education in Kenya that can be tested in the future. Since this study explored the lived experiences and professional perceptions held by Kenyans, it was appropriate to use the methodology of qualitative research.

The qualitative method is the recommended approach to understand and explore how people and groups contribute to situations, experiences, events, and things (Creswell & Creswell, 2017). The origin of qualitative research evolved from sociology, the humanities, anthropology, and evaluation (Alasuutari, 2010). Qualitative research is an ever-advancing process, and it is important to note there is no single way to conduct this kind of research as it is not clearly defined (Ritchie et. al, 2013). Qualitative research is primarily based on the use of interviews, observations, questionnaires, and interpretations (Creswell & Creswell, 2017). The design and methodology of a study depends upon many variables. These variables include the researcher's ontology or beliefs regarding the social world, epistemology or the nature of knowledge, goals of the study, characteristics specific to the participants in the study, as well as the audience of the research itself (Ritchie et al., 2013). Preferences within the mix of these variables as well as other elements led to numerous variations to qualitative inquiry (Ritchie et al., 2013). As cited by

Lawrence-Lightfoot and Davis (1997), qualitative research utilizes a method of inquiry or portraiture that is distinctive in capturing the complexity and dynamics of human experiences while taking a deep dive into the voice of the participants being studied. The purposes, features, and origins of qualitative research methods are distinct in its use of aesthetics and empiricism in an attempt to capture the complexity of life.

There are many ways of conducting qualitative research. While exploring some of the practical issues regarding data collection, analysis, and interpretation, qualitative research seeks to provide a deep understanding of real-world challenges faced by groups and individuals (Korstjens & Moser, 2017). By design, qualitative research questions are generally broad and aim to offer opportunities for unexpected discoveries (Korstjens & Moser, 2017). Qualitative design is germane to the nature of the research question(s), problem, and knowledge sought in the study (Korstjens & Moser, 2017). Comprehending the perceptions and opinions of educators well versed in tertiary education assisted in identifying commonalities in themes relative to creation of a model of tertiary vocational education in Kenya.

Study Design and Rationale

Utilizing a constructivist approach, whereby learning is an active process of constructing new ideas and concepts based on current or past knowledge, the creation of a model of tertiary vocational education in Kenya, perpetuated a necessary shift for vulnerable learners as they seek an avenue of education allowing for economic stability in their lives. In accepting this approach to learning, a research paradigm was employed that considered the social context as part of its unit of analysis rather than simply an individual's cognitive learning process and learning (Santos, 2010). One such approach is DBR. DBR, was developed under the assumption that context affects learning while systematically improving a learning environment (Santos, 2010).

Proposed by Collins (1990) and Brown (1992), DBR can be used to test and revise iterative implementations of certain designs, theories, or models and maintain that theory development is linked to practice (Brown & Campione, 1996). Over the last few decades, DBR emerged to allow researchers to study learning in natural contexts while attempting to address concerns related to educational research while acknowledging recent findings have had a small impact on educational practices and theories (Dede, 2005; van den Akker et. al., 2006). Wang and Hannafin (2005) review the following characteristics of DBR:

- Pragmatic approaches aim to address practical issues encompassing the teaching and learning process.
- Grounded studies are conducted in a real-world context supported by relevant educational theory, research, and practice.
- Interactive research process contextualize issues addressed by collaborating with local practitioners.
- Iterative cycles of design, analysis, implementation, and redesign are utilized as input for the following cycle such that the theory or model can emerge systematically.
- Flexibility permits the artifact or object of research is not fully developed to allow necessary changes to emerge.
- Integrative methods such as interviews, surveys, etc., are combined according to how the research evolves to ensure scientific rigor.
- Contextual findings should be related to the research process itself and the context of where the research is conducted.

Furthermore, van den Akker et al. (2006) discussed the following list of DBR attributes:

- Interventionist: Aims at designing a real-world intervention

- Iterative: Incorporates a cyclic approach of design, evaluation, and then revision
- Process oriented: Focuses on understanding and improving interventions
- Utility oriented: Measures are utilized for users in real contexts
- Theory oriented: Theoretical propositions should contribute to the construction of the design

This study seeks to create a single model of tertiary vocational education and proposes an agenda for testing. Invoking DBR ensures effective testing based on a design approach that incorporates multiple perspectives, while accommodating exigencies and complexities. In utilizing the DBR methodology, a model of tertiary vocational education in Kenya, may address current gaps in tertiary TVET models, revise, and then extend them.

Population and Sampling Processes

Stated by researchers such as Patton (2014):

> The logic and power of purposeful sampling depends on selecting information-rich cases for study in depth. The information-rich cases are those from which one can learn a great deal about issues of central importance to the purpose of the inquiry. (p. 169)

The sample population size involved eight Kenyan participants. First, only the country of Kenya was selected for this study. Rather than include other Sub-Saharan countries, this parameter was put into place given the variance in tribes and culture within Kenya. Given the incredible ethnic diversity in Kenya alone, other countries were delimited to focus on the creation of a model of tertiary vocational education specific to the needs of vulnerable Kenyans. Second, participants were further delimited by their professions. This parameter was put into place to ensure the participants had knowledge or experience regarding tertiary education. Therefore, only the professions of educators, noneducators, and mentors were considered for this study. These

participants were asked to be knowledgeable in the field of TVET coupled with an understanding of Kenya's vulnerable youth population. To achieve maximum variation, characteristics of the sampled participants were as follows:

- native to the country of Kenya
- speak English and their native tongue
- recipient of a degree in education from a university or the recipient of a degree from a tertiary institution such as TVET

In addition, the following benchmarks were utilized to determine both inclusion and exclusion of each participant.

Criteria of Inclusion. The following criteria, as delineated in Table 4, were utilized as a benchmark to recruit participants for this study. Preferences for inclusion were delineated in recruiting materials but will were not formal criteria for participation.

Table 4

Criteria for Participation

Participants	**Example**	**Experience**	**Identify with the following characteristics**
Educators	Teachers, Professors, or Administrators	At least five years of formal educational and instructional classroom experience with learners in any educational discipline	Knowledge and understanding of current challenges and opportunities in tertiary schools, such as TVET. Must be well versed in various supplemental and tertiary models of education. Must have a strong pulse on the deficiencies vulnerable learners experience as it relates to completing an educational program.
Non-Educators	Politicians, Ambassadors,	At least five years of experience outside of the field of education	Knowledge and understanding of current challenges and opportunities in tertiary schools,

Participants	Example	Experience	Identify with the following characteristics
	Government officials, or Business Owners	as it pertains to their position of employment.	such as TVET. Must have a strong pulse on the deficiencies vulnerable learners experience as it relates to completing an educational program.
Mentors	Entrepreneurs, Apprentices, Counselors, Church or tribal leaders, or Tutors	Knowledge of the history of education as it relates to their country. Must have at least five years of experience in the field as it pertains to their position of employment. Must have experience assisting vulnerable learners.	Knowledge and understanding of current challenges and opportunities in tertiary schools, such as TVET. Must have a strong pulse on the deficiencies vulnerable learners experience as it relates to completing an educational program.

Criteria of Exclusion. The following criteria were utilized to narrow the scope of participants who otherwise may hinder the research study and overall process. These include participants who are:

- unwilling to sign informed consent forms
- unable or unwilling to convene in video conferencing or face to face interviews
- unwilling to be video or audio recorded during the interview

All participants were contacted to join in a one-on-one interview through a video teleconferencing platform. Participants who were unable to participate in a video teleconferencing interview, due to connectivity issues or lack of access to a computer, joined in a face-to-face interview with the researcher.

Recruitment. Participants were recruited and selected utilizing the method of convenience sampling and included current contacts of the researcher as well as snowball sampling. According to Creswell & Creswell (2017) convenience sampling or nonprobability

sampling is a less desirable method of sampling in which participants are selected based on their availability and convenience. Although nonprobability or convenience samples can be unpredictable due to severe hidden biases (Etikan et al., 2016), this type of sampling was necessary for this study due to time and economic constraints. Purposive sampling is a subcategory of convenience sampling and is often used as the data is meant to contribute to a better understanding or building of a model or theoretical framework (Etikan et al., 2016). When creating a model of tertiary vocational education in Kenya, it was imperative that data was collected properly so that the participants must possess appropriate qualities, by virtue of knowledge and experience, to adequately contribute to the study (Etikan et al., 2016). Typically used in qualitative research, purposive sampling helps to select and identify information-rich participants. This type of selection helps to ensure appropriate and proper utilization of available resources including identification of individuals proficient and well-informed with the phenomenon of interest while having the ability to communicate their experiences and opinions in an articulate and reflective manner (Creswell & Plano Clark, 2011). Maximum variation sampling (MVS) also known as heterogeneous sampling, involves the selection of participants across a broad spectrum relating to the topic of study. Employing heterogeneity, or an even distribution of diversified participants, based on location and job description, will provide for a wide spectrum of responses.

Human Subjects Considerations

The following actions were taken to protect participants during this study. Prior to the collection of data, participants were required to sign consent forms. These consent forms stated the aims of the study, verification of voluntary participation, and contact information of the researcher should the participants have any questions or concerns. The use of pseudonyms was

used to ensure confidentiality of all participants. Data was transcribed and securely saved utilizing encryption software. Any collected materials, notes, or hard copies of data were stored in a locked filing cabinet and secured in a safe location. Passwords were utilized with secondary authentications when necessary. While this research was expected to have minimal to no risk to the participants, participants may recall information that could potentially trigger emotion, stress, or unpleasantries causing psychological discomfort. Although this did not occur, the participant would have been reassured that their input and perspective will greatly contribute to this study. Should the participant have become overly uncomfortable, the interview would have immediately stopped, and the interview data of the participant would have been deleted. Remuneration and deception were minimized by eloquently and clearly explaining the nature of the study. Transparency and the true nature of the study was disclosed as to not harm the participants. Finally, reciprocity was ensured by sharing the findings of this study with the participants upon the conclusion of the study.

Institutional Review Board

Prior to data collection, permissions were obtained from the Pepperdine University Institutional Review Board (IRB) to ensure the study met all ethical guidelines for conducting research (Creswell & Creswell, 2017), as noted in the Appendix. These ethical guidelines for conducting research included selections of participants, location of participants, consent forms, audio and video recording and storage strategies, collections, and how data or information will be used. Prior to data collection an application containing this information was appropriately submitted to the Pepperdine University IRB for approval.

Data Collection Procedures

McGrath (2019) spotlighted the utilization of interviews in qualitative research as a powerful tool in data collection that can afford researchers in education opportunities to explore the unknown. Qualitative interviewing is one data-collection tool that can be useful in a range of methodological approaches, including design-based research, and may be applied to address several research questions (McGrath et al., 2017). Qualitative research interviews are preferable when the researcher strives to understand the interviewee's perspective of a phenomenon and may lend itself well to exploring alternative models of education as well as holding the potential to give voice to vulnerable learners that may not be heard elsewhere (Reeves et al., 2015)

Qualitative research implementing interviews required the researcher to be the prime instrument of data collection. Consequently, the researcher was conscious, reflexive, conscious, and aware of the impact the interview conversation may have on the interviewee (Lingard & Kennedy, 2010). In the qualitative research interview, it is argued that the interviewer should not be viewed as someone contaminating or biasing the data, but rather as a co-creator of data together with the interviewee, where the interviewer's previous knowledge may play an important part in understanding of the context or the experiences of the interviewee. As such, the interviewer was not a passive player in the interview, but an instrument using his and her abilities, experiences, and competencies in the interview situation (Lingard & Kennedy, 2010).

Lingard & Kennedy suggest that the researcher take an active role as a co-creator of data together with the interviewee. Maintaining the role of co-creator, can help avoid the possibility of the researcher being viewed as someone contaminating the data where the researcher's previous knowledge could perpetuate bias (Lingard & Kennedy, 2010). Semi-structured

interviews, formal interviews, informal interviews, or a combination of formal and informal interviews can therefore reduce this dynamic (Lingard & Kennedy, 2010).

Instrument

This specific study utilized semi-structured interviews as the main instrument for data collection. Creswell and Creswell (2017) recommended that in qualitative interviews there should be unstructured and generally open-ended questions that intend to elicit the overall opinions and views of the participants. Defined by Longhurst (2003), a semi-structured interview is a verbal interchange where the interviewer or researcher elicits information from an interviewee or participant by asking questions. Although a list of predetermined questions was prepared prior to the interview, semi-structured interviews most often unravel in a more informal and conversational tone that offers the participant the opportunity to discuss and explore issues they feel are important rather than simply giving a yes or no answer (Longhurst, 2003).

This study collected data over a period of two months, during the year of 2022. Data collection included eight interviews, approximately 45 minutes in length. These recorded interviews were conducted either face-to-face (seven) or over video teleconferencing (one). The following interview questions, in Table 5, were utilized in this study as they relate back to the research questions to provide data for the variables in this study.

Table 5

Interview Questions

Research Question	**Educators** **Noneducators** **Mentors**
RQ1: What design principles for a micro-trade model will most effectively create economic opportunity for vulnerable Kenyan learners?	What are some of the biggest issues learners have regarding educational **access**?
	What **politics,** if any, are helping or hindering education as it stands today?
	In your opinion, what would encourage or discourage a learner from **attending** school?

Research Question	Educators Noneducators Mentors
RQ1: What design principles for a micro-trade model will most effectively create economic opportunity for vulnerable Kenyan learners?	How can tertiary education be made **equitable** for vulnerable learners?
	What **employment** concerns, if any, do you have for vulnerable learners?
	What types of **funding** have been approved in the advancement of tertiary education? or What types of **funding** is delineated for tertiary education?
	What are one or two specific **support** systems, variables, or models necessary for learners to attend school?
RQ2: What is one model that incorporates these principles?	Can you describe 1-2 teaching approaches that you have encountered or used that are **supportive** for vulnerable learners?
	What is the best way to engage vulnerable learners?
	Is a flexible pedagogical approach to curriculum important? If so, what does a flexible curriculum look like?
	What are some **deficits of TVET** or current models of tertiary education?
	What are some **advantages of TVET** or current models of tertiary education?
	What does a learner centric curriculum encompass for vulnerable learners?
RQ3: What factors will insure the testability of this model?	Of the following three words, which do you value most highly: **dignity, motivation, or inclusivity.** How can this word be captured in the creation of a new tertiary model of education?
	What type of assessments allow for knowledge representation rather than knowledge recall?
	List three variables of success for a new model of education based on your perspective and current position of employment.

Proposed Data Analysis Processes

Data analysis and the process of analyzing data in qualitative research involves discussions regarding overall data collection and recording procedures (Creswell & Creswell, 2017). Components of data analysis included steps and methods used for data, presentation, interpretation, and validation while including comments of the researcher's role and types of qualitative strategies used (Creswell & Creswell, 2017). Steps for this study included

transcription, constant comparison analysis or coding, and the use of Epistemic Network Analysis (ENA) or the means of analyzing data.

Transcription. Once all interview recordings were completed, they were transcribed utilizing transcription software, Trint. Trint is an online machine-powered speech-to-text productivity platform used for audio and video transcriptions. Initially transcribed using artificial intelligence (AI), the interviews will be automatically transcribed by Trint. To ensure accuracy, the interviews were reviewed and cross-checked to ensure accuracy in the transcribed words. Once transcribed and then reviewed, transcriptions were downloaded from Trint and housed in an Excel spreadsheet in preparation for coding.

Constant Comparison Analysis. Coding or constant comparison analysis is one of the most common types of analysis utilized for qualitative data (Miles & Huberman, 1994; Ryan & Bernard, 2000). Constant comparison analysis or coding is commonly employed when a researcher is interested in utilizing an entire dataset to identify underpinning themes (Leech & Onwuegbuzie, 2007). Constant comparison can be tackled three ways; deductively when codes are identified prior to analysis and then searched for in the dataset, inductively when the codes emerge directly from the data, or abductively when codes emerge iteratively (Leech & Onwuegbuzie, 2007). This study applied both deductive and inductive coding. The initial intention of this research sought to create a model of tertiary education in hopes of increasing levels of economic independence among the vulnerable Kenyan youth. Upon conducting interviews to formulate this model, several unexpected and much more salient variables surfaced including basic needs and corruption. Recurring trends of substantial vulnerability and the overarching need for fundamentals arose, and Maslow's Hierarchy of Needs (1943) was integrated into the constructs necessary to underpin the application of the micro-trade model.

These findings will be further discussed in Chapter 5. All eight interviews were coded manually using an Excel spreadsheet during the open coding process. The segmented responses, or utterances, provided by the interviewees were coded independently by two raters using a codebook containing 15 constructs. The raters participated in a process of social moderation (Herrenkohl & Cornelius, 2013) to reach agreement on the final coding. Table 6 provides a list of deductive constructs, or codes, used to analyze, look at patterns, and ultimately formulate constructs necessary to underpin a model of tertiary vocational education in Kenya.

Table 6

Codebook for Qualitative Coding

Category	Code	Description	Example
Needs of Self Actualization and Esteem	Innovative Capacity	The amount that someone or something can produce. Creativity or a shift in thinking. Includes exposure.	It's one of the things that is meant to transform and re-engineer the people's perception towards technical education.
	Transferable Skills	Developed skills that can be transferred from one job to another. Includes communication, honesty, confidence, diligence, and other soft skills.	For me, the most important for an intern coming to work for me, is honesty.
	Hope Resilience	Wanting to achieve a task. Goal oriented. Up to and including a sense of dignity.	It encourages them to work hard to learn so that they can change that kind of lifestyle.
	Learner Centric	Application of a lesson that meets the diverse needs of a learner.	So that instead of them being wasted doing a lot of things for a longer time, they can identify the specifications and the things that they can do better in life.
	Mentorship	Opportunity, counseling, or help given by community, family, friends, or institution	Something else that would encourage learners to learn is when they have role models.
	Inclusion Inclusivity	Inclusive of all learning styles, learners with learning differences or disabilities.	Inclusivity is a big word in terms of access, ensuring that we remove those barriers.

Category	Code	Description	Example
Needs of Self Actualization and Esteem	Cultural Community	Connection, responsibilities, association, and support from family, friends, tribe, or community	I was looking at the children rights, for example, that are made by particular cultures which are not supporting learning.
	Training For Employment	Formal or informal guidance or programs including or leading up to a learner to becoming employed	At our School At X, we actually engaged in teaching vocational subjects like hospitality, business, land based courses like agriculture, arts and even design.
Safety and Physiological Needs	Basic needs	Food, shelter, water, infrastructure, health	Like right now, there's hunger in the country.
	Funding Financial	Anything requiring cost, including but not limited to education, food, shelter	They can really help in ensuring that these learners are accommodated and even supported even materially maybe they're coming from poor programs.
	Barriers To Learning	Limiting the ability for a learner to attend school	And so, for example, someone wants to do tailoring, for example, and then where the tailoring is being offered is in a different county, which is, you know, they might have the money, but it's not within their region.
	Politics /Policies	Policies set forth by the government	Even though the government is trying to ensure that students can access overall universal education, basic education.
	Education	Any utterance pertaining to education.	What I've seen happen is and this is the focus on individualized learning.
Subset Codes	Employment	Any utterance pertaining to employment.	You may find that, especially in our economy, we really need to have people who can have the skilled, the working approach, so they can be able to transfer the little skills to the real setting in the employment environment.

Category	Code	Description	Example
Subset Codes	Controversy	Used as a subset code to reference a deficit in the listed constructs. Anything posing hardship including but not limited to gender disparities, political issues, corruption, crime. Must be coded in tandem with another code	Yeah. Their facilities are not well equipped and not quite sufficient just to give the learner what they need. Yeah.
	Gender	Male/Female	
Metadata	TVET	Yes or No	Involved directly in a TVET program or works in the capacity of TVET
	Location	Urban or Suburban	
	Affiliation	Educator, Noneducator, Mentor	
	Question Category	0, 1, 2, 3, 4	All interviews were separated into 5 categories. (0) introduction, (1) educational issues, (2) educational approaches, (3) educational measures of success, (4) and additional thoughts

Epistemic Network Analysis. Once the transcriptions were coded, data was transferred into an analytic platform called Epistemic Network Analysis (ENA). ENA is a tool that allows for the comparison of different networks that reflects the strength of correlated connections through weighted structures both statistically and visually (Shaffer, 2017). Measuring the strength of a correlation or pattern is one way to analyze how strongly one kind of data is related to another conclusively permitting the relationships between data to rise (Shaffer, 2017). Data segmentation, required by ENA, in this research study was defined as one sentence or thought spoken by the participant. ENA was then used to model the discourse patterns exhibited by the interview participants. An utterance was specified as the unit of analysis. A conversation was

defined as the set of utterances related to the same topical question posed during the interview. Connections between codes were limited to those occurring in the same conversation. ENA utilizes a moving window to capture connections between elements of discourse co-occurring in a recent temporal context (Siebert-Evenstone et al., 2017). A moving window of five was utilized for the ENA models in this study, because each thought or response to each research question from the participant overlapped approximately every five sentences. Utilizing ENA to model the structure of connections in data, this study identified a set of meaningful features as well as how constructs, as they are recorded in interview codes, connected to one another within these interviews (Shaffer, 2017; Shaffer et al., 2009; Shaffer & Ruis, 2017). ENA depicted the connections between codes (i.e., relationships between constructs) by quantifying the co-occurrence of these codes within conversations, which produced a weighted network of co-occurrences visualized by a saturated line within the graph for each unit of analysis within the data. This study applies ENA to develop a micro-trade model underpinned by theories of cognition, discourse, and culture (Shaffer et al., 2009). ENA proved analytically useful for deriving the model of micro-trade, and to build and construct the necessary design principles as they occur within and across these eight interviews.

Means to Ensure Validity

To understand the meaning of validity, it is necessary to understand how it is defined by qualitative researchers. Leung (2015) proposed the definition of validity is such that appropriateness of the tools, processes, and data exists. The procedures chosen to ensure validity in any research study, requires an understanding beyond the specific measures that acknowledge the lens applied to the study. Therefore, the overall contextual framework of this study was crucial in ensuring validity. In doing so, the following protocols were applied to ensure validity:

- Participatory modes of research: Each phase of the research study involved the researcher, inclusive of developing and planning the research design, collecting and analyzing data, and disseminating findings through the creation of a model of tertiary vocational education in Kenya.
- Managing biases: Having an extensive background in education relative to K–12 education in the United States, the researcher is not fluent in global tertiary education, reducing the potential impact of biases.
- Triangulation: Three different groups of participants were interviewed and studied. Although some questions are differentiated based on the participants' employment, some questions are similar for the purposes of triangulation and to ensure credibility of the analysis.

Chapter Summary

This chapter spoke to the purpose of the study, methodological approach, study design, data sources and gathering, human subject considerations, and proposed data analysis processes including means to ensure internal validity of the study. IRB approval was necessary to continue with chapters four and five. Once accepted, participants were secured to initiate the interview process. The proceeding chapters provide groundwork for synthesizing a model of tertiary vocational education in Kenya also viable for testing upon the conclusion of this study.

Chapter 4: Research Findings

The purpose of this study is to create a model of tertiary vocational education in Kenya. Despite considerable progress in Kenya over the last 20 years, current education models, low attendance, and low academic proficiency levels preclude many learners from becoming employable. This chapter reports the finding that a fresh model of tertiary vocational education, focusing on micro-trade, could impact the ability of vulnerable youth to become economically independent.

Utilizing semi-structured interviews of eight Kenyan participants (n = 8), this study explored the testable design principles necessary to create such a micro-trade model. Analysis focused on participants' responses as they pertained to the following research questions:

- RQ1: What design principles for a micro-trade model will most effectively create economic opportunity for vulnerable populations in Kenya?
- RQ2: What is one model of education that incorporates these design principles of micro-trade?
- RQ3: What factors will ensure the testability of this micro-trade model?

Noted in Table 7, data were collected from men and women, located in either urban or rural areas of Kenya, employed as educators, mentors, or noneducators, with or without experience in the sector of TVET or other forms of tertiary education. All participants were native to Kenya, with at least five years of experience in their field. All participants possessed knowledge and understanding of current challenges and opportunities in tertiary schools, they were well versed in various models of education, and they had a strong pulse on the deficiencies of completing an

educational program that vulnerable learners experience. The duration of each interview was approximately 60 minutes.

Table 7

Overview of Participants

Participant Information	Location	TVET Experience	Gender	Affiliation
	Rural (5)	No (4)	Female (3)	Educator (3)
	Urban (3)	Yes (4)	Male (5)	Mentor (2)
				Non-Educator (3)
				Total Participants *(n = 8)*

Qualitative Coding

To identify the design principles necessary to establish a model of tertiary vocational education, the findings in this chapter show that the study's outcomes are consistent with literature pertinent to this research. Also included is the process used to discern codes, categories, and themes from the analysis of the data from the transcripts of the eight participants. To analyze the qualitative interview data for themes, patterns, and relationships from open-ended interview questions, an outside rater performed content analysis in close collaboration with the researcher on each of the participants' responses. Themes materialized from this content analysis in accordance with the qualitative research methodology followed throughout the processes of data collection and interview analysis. Pseudonyms are used to protect participant identity.

Data was collected through semi-structured interviews with eight Kenyan mentors, educators, and noneducators. Convenience sampling was undertaken to conduct the interviews, and interview questions revolved around the design principles of a model of education and the testability of this model. One interview took place via Zoom, while the other seven took place in

person in Kenya. Each interview was recorded and then transcribed using transcription software, Trint, and was then segmented.

Epistemic Network Analysis

ENA is a quantitative ethnographic technique that models the structure of connections in data. All eight interviews were then coded manually using an Excel spreadsheet during the open coding process. The segmented responses, or utterances, provided by the interviewees were coded independently by two raters using a codebook containing 15 constructs appearing in Chapter 3. Data segmentation, required by ENA, in this research study was defined as one sentence or thought spoken by the participant.

The raters participated in a process of social moderation (Herrenkohl & Cornelius, 2013) to reach agreement on the final coding, and ENA was then used to model the discourse patterns exhibited by the interview participants. An utterance was specified as the unit of analysis. A conversation was defined as the set of utterances related to the same topical question posed during the interview. Connections between codes were limited to those occurring in the same conversation. ENA utilizes a moving window to capture connections between elements of discourse co-occurring in a recent temporal context (Siebert-Evenstone et al., 2017). A moving window of five was utilized for the ENA models in this study, because each thought or response to each research question from the participant overlapped approximately every five sentences.

Utilizing ENA, a quantitative ethnographic technique, to model the structure of connections in data, this study attempted to systematically identify a set of meaningful features as well as how constructs, as they are recorded in interview codes, connected to one another within these interviews (Shaffer, 2017; Shaffer et al., 2009; Shaffer & Ruis, 2017). ENA depicts the connections between codes (i.e., relationships between constructs) by quantifying the co-

occurrence of these codes within conversations, which produces a weighted network of co-occurrences visualized by a saturated line within the graph for each unit of analysis within the data. This study applies ENA to develop a micro-trade model underpinned by theories of cognition, discourse, and culture (Shaffer et al., 2009). ENA proved analytically useful for deriving the model of micro-trade, and to build and construct the necessary design principles as they occur within and across these eight interviews.

A theoretical underpinning was used to answer each research question as it pertained to this study, followed by ideas of organizing data collection. As mentioned in Chapter 3, data is classified categorically. Table 8 includes an outline of this ENA classification system and is useful to close the interpretive loop for each ENA graph as it pertains to this study. Furthermore, to contextualize this discussion, utterances captured in the interviews give poignant depth and meaning to the thickness and saturation of the constructs in each ENA graph.

Table 8

ENA Classification System

Category	Definition
Unit of Analysis	The units of analysis defined in this study are all lines of data associated with a single value or question category, subsetted with another additional value. The ENA algorithm uses a moving window to construct a network model for each utterance or line in the dataset, showing how the codes in the current line are connected to other codes within the recent temporal context (Siebert-Evenstone et al., 2017). For this study, the moving window was defined as 5 lines where each line plus the 4 previous lines were analyzed within a given conversation. These networks were then aggregated for all lines within each unit of analysis in the model using a binary summation in which the networks for a given line reflected either the presence or absence of the co-occurrence of each pair of codes.
Statistical Analysis	As further explained by Shaffer (2012), visualized ENA networks utilize graphs where nodes correspond to codes and therefore edges reflect the frequency of a connection or co-occurrence between two codes. As a result, two representations are formulated for each unit of analysis, a plotted point and a weighted network graph. Therefore,

Category	Definition
	ENA can be used to compare units of analysis based on the positions of the plotted points, individual networks, and mean plotted point positions. To ensure the ENA dataset and subsequent measurements of analysis maintained high levels of confidence, the analysis of goodness of fit was conducted to measure the statistical relationship between two variables. These tests included Pearson's correlation coefficient and Spearman rank correlation.
Qualitative Analysis	Upon conclusion of the analysis, a mathematical way of thinking about qualitative data and the social structures to which they point was examined. This examination allowed for a better understanding for the basis for any of the connections in the ENA models. Studying the original utterances enabled quantitative analysis of qualitative data such that quantitative results were validated and then explained in a qualitative fashion (Shaffer, 2017).

- RQ1: What design principles for a micro-trade model will most effectively create economic opportunity for vulnerable populations in Kenya?

Two intellectual parallels emerged within this study as the data was analyzed. First, upon realizing the lack of fundamental and essential needs many Kenyans experience, as discussed further in Chapter 5, the constructs or codes were re-organized around Maslow's hierarchy of needs.[1] Second, the data revealed several issues of corruption often hindering the development of Kenya's politics, economy, and democracy (van Rij, 2021). Many corruption scandals have plagued Kenya since its independence, ranking Kenya as 143 out of 180 countries on the Corruption Perceptions Index (CPI; Transparency International, 2021). These corruption

[1] Maslow's Hierarchy of Needs (1943) depicts the dimensions of human motivations and how they are interrelated. These interrelated motivations are based on the premise that human behavior is determined by fundamental needs which operate and emerge in a sequential order (Ștefan et al., 2020). Maslow's hierarchy describes basic requirements that guide human behavior in a hierarchical order. According to this theory, individual needs occur in steps or levels and to get to the next level, the needs of each lower level must be met. These needs are divided into five groups, physiological needs, safety needs, love or belonging needs, esteem needs, and self-actualization needs.

scandals include practices of embezzlement, bribery, and favoritism. It is imperative that a targeted approach to education is maintained and underpins the trajectory of the micro-trade model when identifying the design principles for this study. This study identified three design principles after analyzing the interview data: education, experience, and employment.

For educational design principles as they pertained to this study, the dataset was filtered by the construct EDUCATION and then omitted as a construct when graphed in ENA. Only utterances noting the construct EDUCATION, coded with a 1, was used in this dataset, and as noted in Figure 7 and Table 9. The unfiltered dataset contained 2,033 lines of data, whereas the dataset EDUCATION contained 504 lines of data and comprised nearly 25% of the original dataset.

Figure 7

ENA Graph: Design Principle One: Education

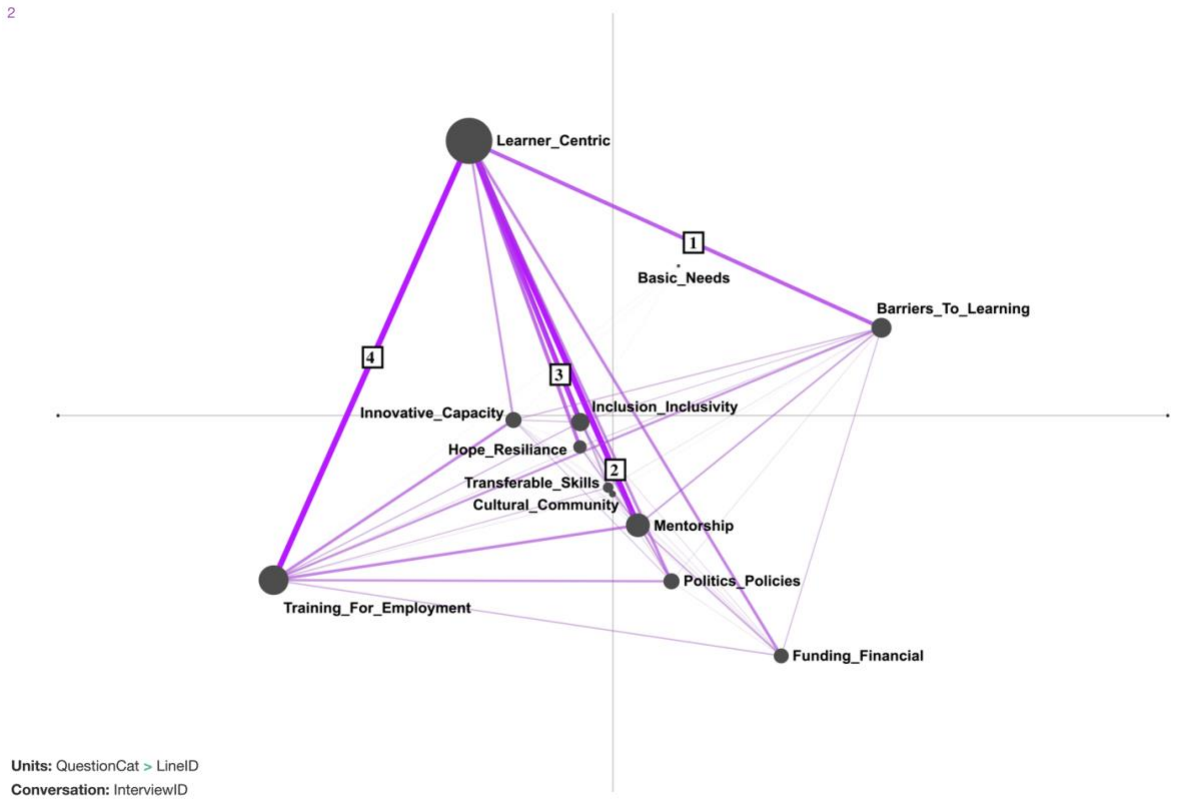


Table 9

Design Principle One: Education

Category	Definition
Unit of Analysis	The units of analysis associated with a single value of QUESTIONCAT or question category was subsetted by LINEID or each utterance associated within the category analyzed. Each interview was broken into four question categories: (0) introduction, (1) issues, (2) educational approaches, (3) measures of success, (4) and additional thoughts. *Figure 7* filters the utterances from QUESTIONCAT 2. The ENA graphs identified in *Figure 7* included the following codes: BARRIERS_TO_LEARNING, BASIC_NEEDS, CULTURAL_COMMUNITY, FUNDING_FINANCIAL, HOPE_RESILIANCE, INCLUSION_INCLUSIVITY, INNOVATIVE_CAPACITY, LEARNER_CENTRIC, MENTORSHIP, POLITICS_POLICIES, TRAINING_FOR_EMPLOYMENT, and TRANSFERABLE_SKILLS. The code CONTROVERSY was not applicable and was omitted, because RQ1 seeks to understand the establishment of
Unit of Analysis	micro-trade design principles. Furthermore, the code EDUCATION was not included, since the initial dataset was filtered by this construct; including this code would result in a lopsided graph, as all coded utterances contained the construct EDUCATION. Finally, the code EMPLOYMENT was omitted primarily because RQ1 is rooted in the educational model of micro-trade and not employment.
Conversation	Conversations or separated turns of talk were delineated with the value InterviewID of the identification of each participant, numbers 1 through 8, who was interviewed for this study.
Statistical Analysis	This model yielded co-registration correlations of 0.92 (Pearson) and 0.92 (Spearman) for the first dimension, and co-registration correlations of 0.83 (Pearson) and 0.81 (Spearman) for the second (Epistemic Network Analysis).
Qualitative Analysis	The largest amplified node occurred in the construct LEARNER_CENTRIC, which suggests that the parameters surrounding the principles of this model of micro-trade must initiate a learner centric approach. Successively, there were several connections and saturated lines pointing to constructs, which established what a learner-centric environment should look like (as mentioned by the 8 interview participants). While LEARNER_CENTRIC connects to nearly every construct in *Graph 1*, the most heavily weighted or lines of heaviest saturation include: BARRIERS_TO_LEARNING (1), MENTORSHIP (2), INCLUSION_INCLUSIVITY (3), and TRAINING_FOR_EMPLOYMENT (4).

Patterns of Discourse (1)*:* A thick and saturated line was visible between the constructs LEARNER_CENTRIC and BARRIERS_TO_LEARNING, suggesting that many learners could

find it difficult to initiate programs such as micro-trade during their tertiary years of learning. This perceived "block" builds on the foundational work of Ekstrom (1972) and Cross (1981), who acknowledge three defining barriers for perceived access to tertiary education: dispositional, institutional, and situational. Dispositional barriers relate to attitudes of self-efficacy toward learning. Institutional barriers relate to lack of supportive and educational opportunities toward learning. Situational barriers relate to social roles, obligations, or physical states such as health hindering opportunities toward learning. In analyzing the utterances of the eight interview participants, these three barriers proved to immediately hinder learners from accessing education. In the case of dispositional barriers, participants stated:

> Participant 1: [00:08:03] Am I joining the tertiary education because it is available or it is I am joining it because it is adding more value to myself.
>
> Participant 3: [00:23:25] Or they just disillusioned, you know, they don't want to continue with education.

In the case of institutional barriers, the following utterances further emphasized the strength in connection between the two constructs:

> Participant 8: [00:06:52] The school environment is welcome, it's friendly that will really motivate the learner to learn…Yeah. Their facilities are not well equipped and not quite sufficient just to give the learner what they need. Yeah…At all stages of learning and ensure there is enough learning materials at times it's a challenge.

Patterns of Discourse (2): A strong connection or saturated line was also noted between the constructs LEARNER_CENTRIC and MENTORSHIP. This bond indicates a necessary linkage

or relationship between the learner participating in the micro-trade program and mentor.[2] The strong connection within the data observed substantiates the need to ensure that a robust mentorship program is in place for learners seeking to participate in micro-trade. The qualitative interview data, which posited the line thickness between the constructs LEARNER_CENTRIC and MENTORSHIP, were further delineated in the following utterances:

> Participant 4: [00:38:34] Okay. So I think like maybe empowering people to be, to, to, to enable others to grow their areas of interest…[00:39:00] How do we create an environment for you to pursue that, that area of interest?
>
> Participant 5: [00:05:12] When the environment is that conducive, the teachers are good they understand these children or the learners.
>
> Participant 8: [00:05:10] Something else that would encourage learners to learn is when they have role models.

Patterns of Discourse (3): Many aspirations expressed in the First Medium Term Plan of Kenya's vision (Kenya, 2008) include equitable access and quality of education at all levels. The following utterances spoke directly to what this looks like in an educational environment and helped explain the connection between LEARNER_CENTRIC and INCLUSION_INCLUSIVITY noted in Figure 7:

[2] Neurobiological studies of learners who have experienced trauma or who are experiencing repeated stress have shown overactivity in the brainstem (Adubasim & Ugwu, 2019). Learners who have experienced this type of activity acclimate to limited prefrontal cortical activity. A sluggish prefrontal cortex increases the difficulty for learners attempting to engage in school, resulting in the learner being cognitively "absent." When neurological activity in the brainstem is on overload, the learner's capacity to problem solve or apply logic can be quite limited. The literature explains that these learners operate while using a survival brain. Helping to calm the overactive brain stem by showing support and encouragement in a positive environment can encourage prefrontal cortical activity, allowing the learner to operate with a learning brain.

> Participant 1: [00:19:46] But my opinion would be that when you come to tertiary education, we need to have more flexibility, we need to have more relevance… Yeah, the catalog is a little bit not adaptive in terms of the learner's need, especially if the learner has particular challenges that have occurred within the process of going through the course…So I think it's very important for them to actually be flexible in their approach towards the curriculum designed to suit the different learner needs.
>
> Participant 2: [00:27:24] And that's actually where the problem started and there you see the learners who have different approaches to maybe the learning approach or maybe they kind of if they're slow learners or maybe they're fast learners… And you can find those who think that are fast learners you need to actually be innovative and accommodate how they can with the advantage of learning fast… So that learners can be joined in schools as per their specifications and what they can do best… Yeah. So that each child has an opportunity to get a good foundation academically… These students have different needs that some with slow learners they would need a teacher who would go an extra mile, who understands to take them through to come to the same level as the rest.

Patterns of Discourse (4): The following utterances helped contextualize the thickness of the heavily saturated line between LEARNER_CENTRIC and TRAINING_FOR_EMPLOYMENT, as many participants emphasized the need for this theoretical approach.

> Participant 1: [00:22:08] It caters for the whole spectrum of who would be the trainees.

> Participant 2: [00:13:34] Or ensuring that the teachers have been trained properly to deal with the gaps that may be existing in the learning process.
>
> Participant 8: [00:07:42] Yeah, we realize that when they get the help they need, they don't struggle. [If] they get that hands on course, they are able to start up a business on their own and start earning a living without having to wait for long to be employed all that.

The second design principal, experience, emerged after observing the large node LEARNER_CENTRIC in Figure 8. This study therefore sought to scrutinize what a true learner-centric experience looked like as it pertained to the population of this study, as noted in Table 10. That being the case, the filter applied for the second component of the micro-trade model was learner centric. A total of 182 utterances, or 9%, were delineated with the code learner centric out of the total dataset containing 2,032 utterances. While a small portion of the data, this study acknowledged the necessity to better understand the meaning of learner centric and its components as described by the participants in this study.

Figure 8

ENA Graph: Design Principle Two: Experience

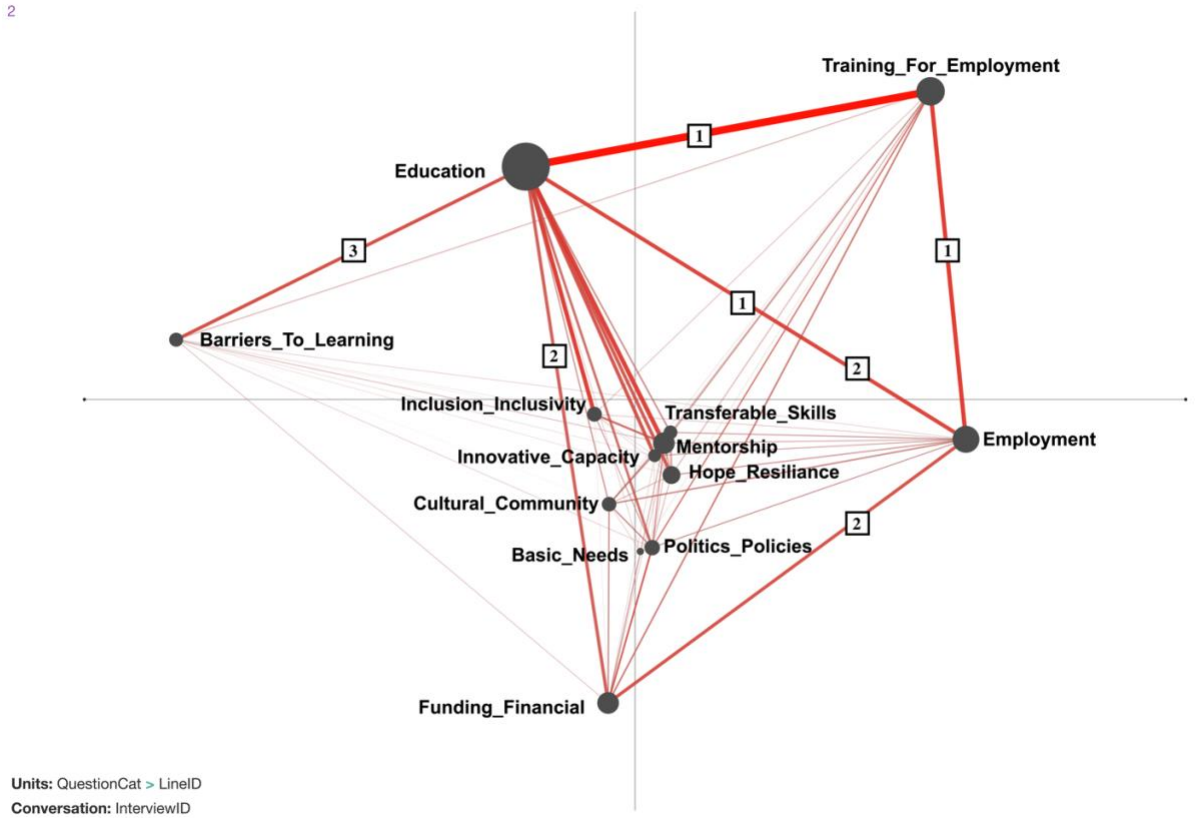


Table 10

Design Principle Two: Experience

Category	Definition
Unit of Analysis	The units of analysis associated with a single value of QUESTIONCAT or question category was subsetted by LINEID or each utterance associated within the category analyzed. Each interview was broken into four question categories: (0) introduction, (1) issues (2) educational approaches (3) measures of success, (4) and additional thoughts. Graph 2 filters the utterances from QUESTIONCAT 2. The ENA graphs identified in *Figure 8* included the following codes: BARRIERS_TO_LEARNING, BASIC_NEEDS, CULTURAL_COMMUNITY, EDUCATION, FUNDING_FINANCIAL, HOPE_RESILIANCE, INCLUSION_INCLUSIVITY, INNOVATIVE_CAPACITY, MENTORSHIP, POLITICS_POLICIES, TRAINING_FOR_EMPLOYMENT, and TRANSFERABLE_SKILLS. The code CONTROVERSY was not included as a code in this dataset, but it will be further analyzed in Chapter 5 as it pertains to issues surrounding a learner-centric environment. Furthermore, the code LEARNER_CENTRIC was not included because the initial dataset was filtered by this construct;

Category	Definition
	including this code would result in a lopsided graph, as all coded utterances contained the construct LEARNER_CENTRIC.
Conversation	Conversations or separated turns of talk were delineated with the value InterviewID of the identification of each participant, numbers 1 through 8, who was interviewed for this study.
Statistical Analysis	This model had co-registration correlations of 0.91 (Pearson) and 0.92 (Spearman) for the first dimension, and co-registration correlations of 0.92 (Pearson) and 0.92 (Spearman) for the second (Epistemic Network Analysis Software).
Qualitative Analysis	The largest node in Figure 8 is indicated by the diameter of the construct EDUCATION, two distinct triangulations emerged. First, darker and thicker lines among the constructs TRAINING_FOR_EMPLOYMENT, EMPLOYMENT, and EDUCATION indicated strong connections within the utterances of data (1). Similar concentrated lines of connection were seen among the same constructs EDUCATION and EMPLOYMENT, but also include FUNDING_FINANCIAL (2). Finally, the ENA Figure 8, seems to be drawn to the left as heavy saturation is seen between the construct EDUCATION and BARRIERS_TO_LEARNING (3). Similar line thickness and saturation was seen in the discourse of Figure 7.

Patterns of Discourse (1): A large emphasis was placed on the intention of engaging learners practically, rather than theoretically. This was prominent in the results from Figure 8 as it pertained to what a true learner-centric experience should look like. The following utterances described this interpretation:

> Participant 2: [00:21:47] Yes. When you look at the TVET itself it's a beneficial kind of activity or vocation is beneficial because it emphasizes the practical skills.
>
> Participant 4: [00:02:54] And and then in the course of their of the course, there is a requirement for them to have practical skills of practical application of the courses that they are doing.
>
> Participant 8: [00:07:42] Yeah we realize that when they get on hands on courses after they've finished their courses, they don't struggle…They don't (inaudible)

> like those who go mainly to universities and all that yeah, to do a profession you find that a student or a learner who has been in a vocational training, they get that hands on course, they are able to start up a business on their own and start earning a living without having to wait for long for to be employed all that.

Patterns of Discourse (2): A saturated line was noted in Figure 8 among the constructs of education, employment, and financial funding. The following utterances described controversies as they concerned tertiary educational institutions as well as how, ultimately, finances could hinder learners from succeeding in this setting and impair their efforts to become economically independent. Underpinning several of these utterances was the lack of interest learners had attending a school that was poorly financed and deprived of many fundamental materials, such as textbooks or supplemental resources.

> Participant 2: [00:05:00] You find that learners make up to maybe four or five, maybe sharing a resource like [inaudible], and that can hinder accessing the learning and it slows down the learning process… Some of the biggest issues are lack of proper infrastructure and also inadequate, uh, inadequate, uh, materials, learning materials and also staff, both teaching and support staff. … Maybe the schools have limited resources…Okay but also, in terms of the equipment itself, if it's catering, then you need the tools so that they can use these tools to learn the skills and the that and they are expensive and and they are not accessible.
>
> Participant 8: [00:09:56] Yeah. Their facilities are not well equipped and not quite sufficient just to give the learner what they need. Yeah.

The following story, as told by Participant 1, poignantly described financial instability as it pertains to school fees and how a learner cannot receive their certificate of completion unless the school tuition is paid in full:

> Participant 7: [00:02:58] Finance, school fees is one of the biggest problems. And cause most school fees here is quite expensive and the government tries to supplement with the bursaries, but not everybody gets a bursary. They are school fees and it's not affordable for many parents…So many parents really struggle to pay their school fees. By the time the the child is finishing their school, their parent has arrears. So the child is not given a certificate until the school fees is cleared…Financial challenges you may come across a very bright child who is willing to pursue their education to the highest level, but then they have financial limitations.

Some learners not only lose interest in schools that are poorly financed but many also associate certain dangers with schools lacking basic facilities and systems. The hindrances and lack of financing played within the schools was eminent in the utterances relayed by participants, describing the lack of infrastructure in a local school:

> Participant 3: [00:18:38] Second which is a bit different in terms of facilities, we tend to think of classrooms, but we don't take into account lavatories which are disease spreaders and make students sick. Yeah…Very nice school one of the buildings was brand new…You know, and there were not more than eight toilets for boys and girls. Um. It yeah, the pit toilets but, um which had collapsed, actually. Yeah, they had collapsed. So what they have now is about eight toilets. And it's worse than that because now they're trying to construct other pit toilets.

> So they have big holes in the ground of like, I don't know, 10, 10 feet, 15 feet. And you have a thousand students, so an accident is going to happen. An accident is going to happen…Yeah I mean, because you are admitting students, you have to admit students in accordance with the facilities you have, you know, so if you don't have students, you have a thousand students and you have eight toilets. What business do you have admitting 1000 students.
>
> Participant 6: [00:16:12] Yeah many of them are not very clean because they might not be having enough money to buy soap and even employ someone who can be doing the cleaning yes. So that if the students are seated in a class, they are sitting in a clean place whereby they cannot contract, you know, diseases and all these.

Patterns of Discourse (3): Precisely 122 utterances, or 6%, were coded and noted as containing elements of learning barriers as they pertain to this study's participant responses regarding the education system in Kenya. From these utterances, two striking topics emerged; fear of attending school, and an inability to attend school attributed to lack of essential needs. While both males and females experience violence and even harm in the home as well as at school, many culturally defined gender-based roles have manifested disparity in educational opportunities. The following utterances further convey detailed and personal accounts of these topics and illustrated in Figure 9 and further explained in Table 11.

> Participant 2: [00:05:18] You can look at the marginalized communities in Kenya and look at the northern part of the northeastern, part the individualization and the accessibility to education has been a big problem, because of aspects of maybe civil wars or maybe these aspects of the effect of terrorism and so on.

Further along in the interview, Participant 2 expanded on similar access barriers as they concern learners who fall out or fall behind as a result of gender-based practices.

> Participant 2: [00:06:13] Maybe there is aspects of gender inequality. There is, it's a big issue, especially in look at our place in our country, like there is a place called Turkana or Pokot. Those are areas of they are practicing the FGM. And you'll find that once some of those students are able to go through that process, most of them end up not even getting back to school. And therefore, it's actually disadvantaging them to gain access to learning. Or maybe by bad luck, some of those students get pregnant and then they are forced to get married at that tender age.
>
> Participant 3: [00:30:36] We have cases of children, who are enrolling to school late, in some other parts of the country…Because the communities value that they go to a religious education before they come to formal education, so how does formal education address that need? Because they are delayed and when they are delayed the risks of dropping out are high.
>
> Participant 7: [00:14:02] I know after working with the girls I know sanitary towels is a big support system…And let me give an example of how bad it is…There's a girl last year in a certain school she stained her dress and the teacher made a joke out of it in front of the class…And the girl went and hanged herself and she died…So, girls, many girls don't go to school during those days, so they lose out.

Figure 9

ENA Graph: Design Principle Three: Employment

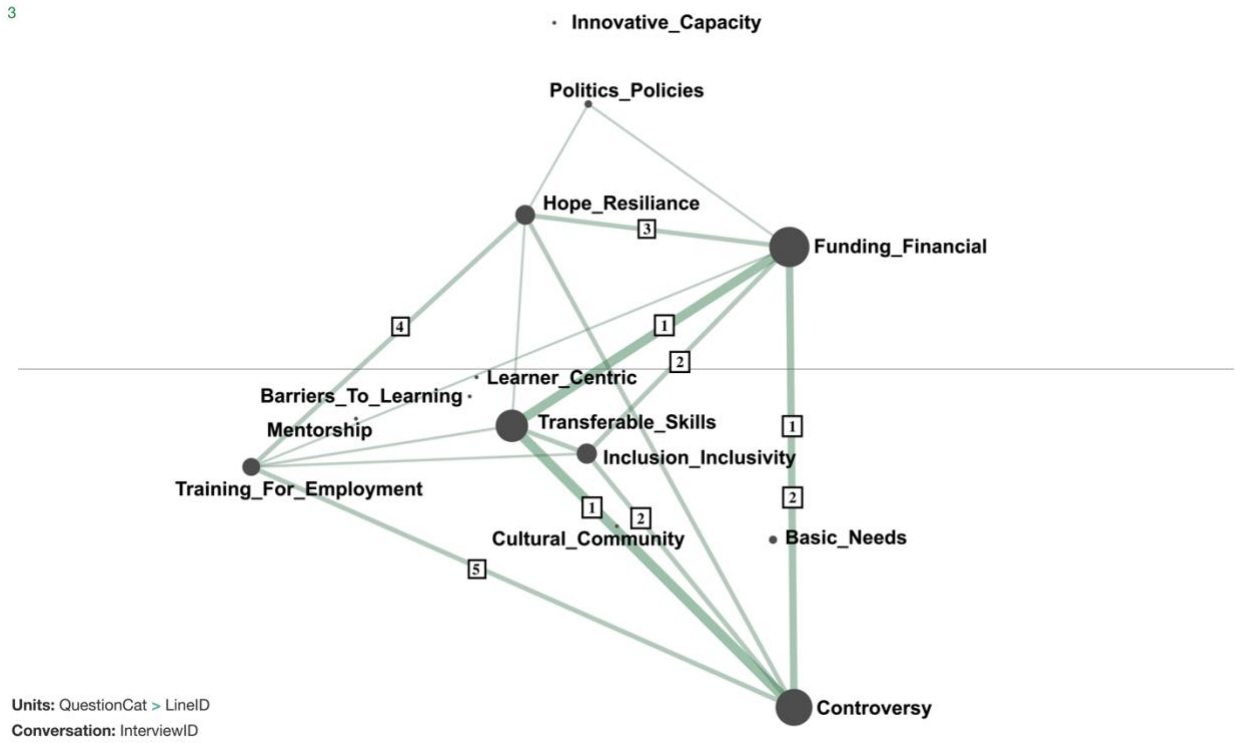


Table 11

Design Principle Three: Employment

Category	Definition
Unit of Analysis	The units of analysis associated with a single value of QUESTIONCAT or question category was subsetted by LINEID or each utterance associated within the category analyzed. Each interview was broken into four question categories: (0) introduction, (1) issues (2) educational approaches (3) measures of success, (4) and additional thoughts. Graph 3 filters the utterances from QUESTIONCAT 3. The ENA graphs identified in Figure 9 included the following codes: BARRIERS_TO_LEARNING, BASIC_NEEDS, CULTURAL_COMMUNITY, CONTROVERSY, FUNDING_FINANCIAL, HOPE_RESILIANCE, INCLUSION_INCLUSIVITY, INNOVATIVE_CAPACITY, MENTORSHIP, POLITICS_POLICIES, TRAINING_FOR_EMPLOYMENT, and

Category	Definition
	TRANSFERABLE_SKILLS. The code EDUCATION was not included as a code in this dataset since it did not pertain to this research question; rather, this research question poses the viability and measure of success for the micro-trade model, ultimately resulting in learners gaining employment and economic independence. Furthermore, the code EMPLOYMENT was not included as the initial dataset was filtered by this construct, including this code would result in a lopsided graph as all coded utterances contained the construct EMPLOYMENT.
Conversation	Conversations or separated turns of talk were delineated with the value InterviewID of the identification of each participant, numbers 1 through 8, who was interviewed for this study.
Statistical Analysis	This model had co-registration correlations of 0.98 (Pearson) and 0.98 (Spearman) for the first dimension, and co-registration correlations of 0.98 (Pearson) and 0.98 (Spearman) for the second.
Qualitative Analysis	While the largest node in Figure 9 is indicated by the diameter of the construct FUNDING_FINANCIAL, the nodes CONTROVERSY and TRANSFERABLE_SKILLS are also noteworthy and materialized as being considerably large. Strong saturation and triangulation was noted among the constructs TRANSFERABLE_SKILLS, FUNDING_FINANCIAL, AND CONTROVERSY (1). Thick and concentrated lines of connection and additional triangulation are also seen among the same constructs FUNDING_FINANCIAL and CONTROVERSY, while including INCLUSION_INCLUSIVITY (2). Prominent connections also included those of HOPE_RESILIANCE and FUNDING_FINANCIAL (3), HOPE_RESILIANCE and TRAINING_FOR_EMPLOYMENT (4), as well as TRAINING_FOR_EMPLOYMENT and CONTROVERSY (5).

Category	Definition
Qualitative Analysis	Notably, many constructs lacked any connection within the utterances pertaining to question category three. Those constructs included INNOVATIVE_CAPACITY, BASIC_NEEDS, LEARNER_CENTRIC, BARRIERS_TO_LEARNING, MENTORSHIP, and CULTURAL_COMMUNITY.

This connection and saturated line between Learner Centric and Barriers to Learning was also seen in Figure 7, where discourse connections were observed among Education and Barriers to Learning. These connections in the data fundamentally underpinned the model of micro-trade and salient solutions noted in the eight interviews and are worth mentioning. Discussions about

offering learners adequate time to learn and practice their trade in a kindhearted environment were mentioned and woven into all interviews in this study. Furthermore, several participants' dialogues evoked ideas of withdrawing some of these barriers to learning by offering a safe environment where learners enjoy transportation to and from school, food, as well as viable shelter while studying.

Design Principle Three: Employment: Interviews yielded some utterances coded for EMPLOYMENT. That being the case, the filter applied for the third component of the micro-trade model was employment. A total of 246 utterances were delineated with the code Learner Centric out of the total dataset containing 2,032 utterances, or nearly 10%.

Patterns of Discourse (1): Most participants discussed the need for learners to receive a more practical approach to knowledge acquisition rather than a theoretical approach. One such example of this practical knowledge was captured in Figure 9, which pertained to the lack of transferable skills and the negative effect this can have on the ability for learners to become employed. Examples of these coded utterances are as follows:

> Participant 2: [00:22:05] You may find that, especially in our economy, we really need to have people who can have the skilled the working approach, so they can be able to transfer the little skills to the real setting in the employment environment…And then it will find through that passion each case and entrepreneurial skill.
>
> Participant 3: [00:09:18] And of course, at the end of the day, they have a, uh, a living and a living can and a living and they being self-employed. Yeah…They were walking down the road looking for a place they could intern.

> Participant 6: [00:13:45] Uh. Because if you have dignity, then people, at least with respect to you, and if they have a job, they can call for you…And they will also earn their own living.

Patterns of Discourse (2): When working with individuals qualitatively, methodological issues arise, and a certain flexibility or understanding of unintended outcomes should be recognized within the research design. Originally, constructs containing CONTROVERSY and INCLUSION_INCLUSIVITY were intended to target learners with either diagnosed or notable learning differences that would generally hinder their growth and experiences in a traditional learning environment. Overlaying the construct employment coupled with FUNDING_FINANCIAL formulated a new definition of the collective codes. After reflecting on the utterances underpinning much of the data associated with the inclusion of controversy as it pertained to employment, the definition necessitated an amendment. Participants' utterances did maintain poignant issues relating to learners who are either behind, delayed, vulnerable, or all three, but these mentions gleaned a notable context when transcribed from the perspective of the population as it pertains to this study. The following discourse captured the happenstance of learners once they "fall out of the system" or are unable to be served during their tertiary or compulsory years.

> Participant 6: [00:06:50] Yeah, because we find cases whereby some have been hidden in homes that have been taken out of school because of the illiteracy of the parents…They they take those children as a they're not lucky or something of that kind of they're not supposed where the others are. Or they feel that others will harass them or feel low. So they keep them in homes.

Discussing the same vulnerable population of learners, Participant 6 was further probed regarding thoughts on the future of these vulnerable learners.

> Researcher: [00:08:29] What do you think of or maybe I should ask, do you think there's a problem with young people, young adults and lack of employment?
>
> Participant 6: There is. Yeah. Cause you will find that after they finish school, they're at home and there's no employment. But you'll find that when they go home, no one identifies where they are. And then, like in our country, we find that at times some kids are languishing in homes because maybe their parents are not known. But those who have parents who are known, they can access the other, the places they went to administer their children through other means.

Patterns of Discourse (3): Strength and thickness between the nodes HOPE_RESILIANCE and FUNDING_FINANCIAL were captured. Qualitatively, this connection corroborates many vulnerable Kenyans' hope and persistence in seeking financial stability and is further contextualized in the following dataset:

> Participant 2: [00:22:52] Also look at maybe in terms of for the needs of the global context in itself. Where does the student place himself or herself in that particular space so that we can or she can be able to actually be in a better position to be accepted around the world in terms of employment? And then also there is maybe this need actually for tertiary institution because I'm sure if you engage actively through practical skills, you may able to again that again that aspect of or maybe that passion in doing something like. I remember like me, I was I did what you call art and crafts. So art and craft. Yes, whereby we were drawing we were making crafts. Yes. So I do know I've developed that passion I can maybe draw.

> So I realize if I can draw, it can be one way in which I can maybe have an extra income or maybe make something like a craft that can help in maybe creating art. Yes so it's can awaken most of those learners passion to learn and even be innovative in a way.

Additionally summarized by Participant 8:

> Participant 8: [00:01:24] Financial challenges you may come across a very bright child who is willing to pursue their education to the highest level, but then they have financial limitations.

Patterns of Discourse (4): During each interview participants were asked the question "Of the following three words, which do you value most highly: dignity, motivation, or inclusivity. How can this word be captured in the creation of a tertiary model of education?" Responses to this question are disseminated in the Table 12.

Table 12

Responses to Integrity, Dignity, Motivation

	Dignity	**Motivation**	**Inclusivity**
Number of Participants Most Valued	2	2	4

This data echo the data captured in the ENA Figure 9. This question was asked to better understand the complexity of what success looked like from the perspective of a Kenyan noneducator, educator, or mentor, and to ensure bias from the researcher's perspective was not overshadowing the result. In asking this question a multifaceted and complex response arose in that success for each learner was communicated as dependent on their own goals, desires, aspirations, and eventual personal accomplishments. One story in particular, regarding

HOPE_RESILIANCE and TRAINING_FOR_EMPLOYMENT, was captured in the following utterances:

> Researcher: [00:12:18] So what motivated you to bring interns into your [farm].
>
> Participant 3:[00:12:22] They brought themselves.
>
> Researcher:[00:12:23] Really?
>
> Participant 3:[00:12:23] Yeah. They found me by accident.
>
> Researcher:[00:12:25] Oh, my gosh.
>
> Participant 3:[00:12:26] Yeah this is just sheer luck. They were walking down the road looking for a place they could intern. Imagine all the way from Kakamega?
>
> Researcher:[00:12:33] Yeah.
>
> Participant 3:[00:12:34] There was a farmer they had been referred to by neighboring my neighbor, but he'd closed on his dairy farm.
>
> Researcher:[00:12:40] Okay.
>
> Participant 3:[00:12:41] So obviously they cannot work there. So as they are walking down looking for another alternative it was a God sent.
>
> Researcher:[00:12:48] Wow.
>
> Participant 3:[00:12:48] Yeah, they saw [my] dairy processing plant and they walked in and there it was. The rest is history.

Patterns of Discourse (5): A particularly striking yet short commentary regarding TRAINING_FOR_EMPLOYMENT and CONTROVERSY and its specificity as it pertained to vulnerable populations in the surrounding community was noted in the data. When asked “What employment concerns do you have for vulnerable learners” the following utterances were captured:

Participant 7: [00:10:21] Lack of employment and exploitation…There's a lot of especially the girls you have to offer you yourself, for example, your body to get employed…So that's very common and unfortunately, due to those circumstances some students yield to get that employment.

Researcher: Wow, that's common?

Participant 7: Yeah, it's very common.

- RQ2: What is one model of education that incorporates these design principles of micro-trade?

The data supports a model of tertiary vocational education in Kenya that is small in duration and scale, proceeds with adequate resources and infrastructure to didactically incorporate practical skills, and, finally, promotes entrepreneurial independence. This model intends to facilitate the acquisition of a micro or small-scale trade to vulnerable Kenyan learners unable to advance or finish their compulsory years, many of whom succumb to underpinning corruption in hopes of harnessing employment. The second step of this process involves making theoretical connections between the discord represented within the three ENA graphs to create a model of micro-trade addressing the necessity of empowering vulnerable Kenyan youth. While the initial intention of this study was to educate learners toward their own economic independence, research in the field unveiled the need to address the issue of corruption during the employment process. This new confounding and salient issue resulted in the creation of a much more poignant and targeted model. In an attempt to circumvent learners from suffering the interview and employment process, this model provides the most basic and necessary skills for the learner to become their own micro-entrepreneur. However small and basic, the skill or skills obtained through a learners' engagement in micro-trade allows them to go back to their

community and provide some level of service and marketability to generate income.

Complementing Table 1, A Suggested Model of Tertiary Education vs. Current Tertiary Models of Education (as mentioned in Chapter 1), the following, Table 13, illustrates comparisons between micro-trade and other tertiary models of education. The example of tailoring is used to further delineate the difference between the two models of education.

Table 13

Comparison Between Micro-Trade and Other Tertiary Models

	Suggested Model of Micro-Trade	**Current Tertiary Models**
Duration	Hands-on tailoring skills are delivered based upon the learners' pace. Immediate compensation can be collected while attending micro-trade in tandem.	Certificate of completion is given to a learner, and they are recognized as a tailor.
	Example: Learner retains the skill of hand stitching clothing in need of mending. Upon returning home, the learner seeks items in need of mending throughout the community.	Example: Only after completing the program, can the learner commence the trade of tailoring or seek employment opportunities.
Barriers to Entry	Located in remote and small communities readily accessible based on learners' capacity to attend; transportation and meals are provided, and there is no cost of attendance. Income can be generated on "off" days or when learners are not in attendance.	Tuition-based and often requiring additional costs including food, travel, or lodging to attend locations commonly located in unfamiliar urban areas.
	Example: Learners could attend micro-trade three times a week, permitting direct-to-consumer business the other four days and enabling immediate financial stability to ensure some basic needs like food, shelter, and safety are met.	Example: Some vulnerable learners are required to leave their communities for the first time and can be inexperienced in navigating "busy city life" to attend TVET institutions, which increases the potential for them to be taken advantage of.

	Suggested Model of Micro-Trade	Current Tertiary Models
Approach	Participatory approach, providing each learner to develop and refine skills as these skills are retaught to other learners. Skills are practiced in real-time as learners quickly pivot based on community demand and satisfaction of their skill.	Authoritative and set curriculum.
	Example: A learner returns a mended sock to a consumer and the consumer complains that the mend falls apart too quickly. The learner can take this feedback and refine the issue with their micro-trade mentor.	Example: Learners are taught the trade of tailoring based on the best practices of that institution. Once employed, mentoring is often scarce and production issues may be mis-construed as the inability for the learner to do a good job.

Model of Tertiary Vocational Education in Kenya

Incorporating these delineations, as mentioned in Table 13, Figure 10 above provides a visual and representation of how micro-trade identifies many educational barriers to entry, and attempts to engage learners toward economic independence and personal growth. Surrounding the representation of micro-trade are three components leveraged from Kirkpatrick's Model of Education: experience, learning behavior, and results.

Experience: Prior to attending a micro-trade education program, specific foundational matters must be in order to ensure a suitable environment for the learner as it pertains to their community and communal needs. It should be noted, and will be discussed further in Chapter 5, that this model only pertains to the rural and vulnerable populations of Kenya. Generalizing or imposing this model on another Kenyan population or on another country may render the model unsuitable for the needs of that specific community.

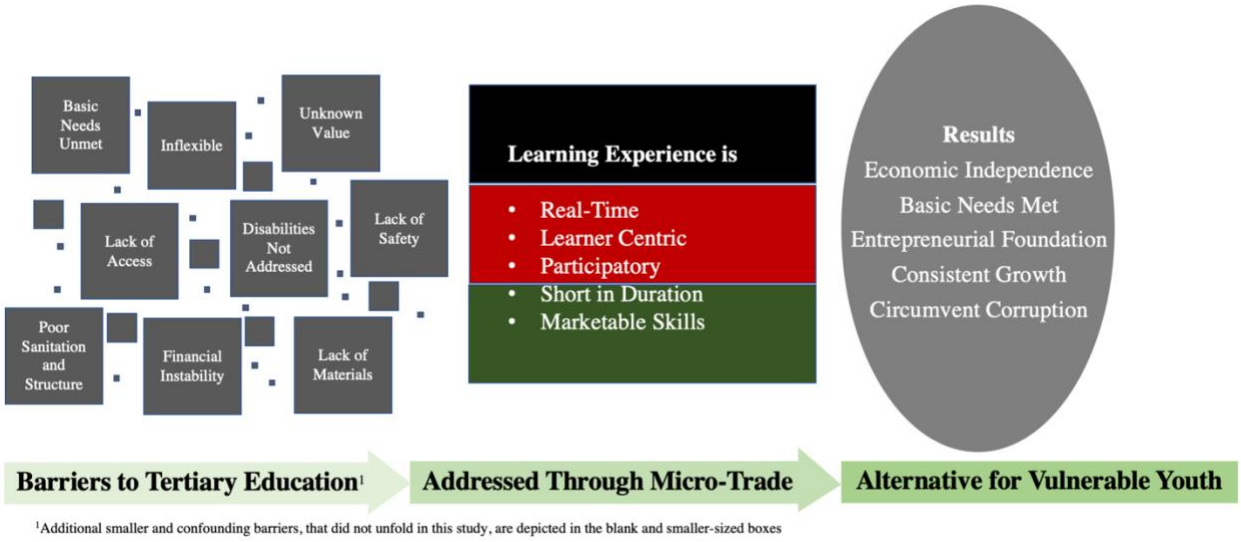
Specific to the community of rural Kenya, Kiminini, the following factors are key to ensure the sustainability of this micro-trade model. These factors, drawn from the respective ENA graphs, Graph 1, Graph 2, and Graph 3, include barriers to entry, mentorship, and inclusion. These elements must be confronted prior to any learner beginning micro-trade to ensure learners' ease of mind and appropriate access.

Learning Behavior: Upon entry and once the format and experience of micro-trade has been established, it is necessary to understand the anticipated or resulting learning outcomes. Understanding what increased knowledge looks like can be displayed from the learner-centric experience garnered through the participation in the micro-trade program. It is important to understand what type of learning is taking place and what structures or tools must be in place to ensure appropriate learning is taking place. Tangible factors, as they pertain to the learner, include the application of practical skills, poignant and accessible learning materials, and abundant infrastructure. Once each learner acquires the practical skills necessary via micro-trade, it is possible to determine the extent to which the learner's behavioral changes increased for their employment readiness.

Results: Results or measurable outcomes must be analyzed based on each individual learner and their own vision of success. While micro-trade looks to promote economic independence among its learners, this variable is completely dependent on the outlook the learner has for themselves. Further discussion on how this measurable data will be harnessed comes is in the next section addressed in RQ3.

Figure 10

A Schematic Model of Tertiary Vocational Education in Kenya



- RQ3: What factors will ensure the testability of this micro-trade model?

How can a successful micro-trade program be measured? Three answers emerged in this study. First, the study's interview data repositioned the primacy of locating universal testability "factors" that RQ3 presumed. Nuance conceptualized on the unmeasurable facet of micro-trade demonstrated that a learner's experience cannot be measured based on the design of the model as such. The micro-trade model that emerged from the analysis necessary to address RQ1 and RQ2 requires attention to the specific needs of each learner as well as the crafting of goals defined by each individual learner. Ensuring that micro-trade remains specific, individualized, flexible, and learner-centric, the model found by this study was truly localized to the learner and attended to their personal circumstances upon entering micro-trade. Thus, this study found that employing impersonal, universal factors of testability would paradoxically undermine the model's application. This study's analysis of RQ2 utilized the example of a learner engaged in micro-trade tailoring who enters the program with high communication skills and confidence in

marketing themselves within their community. On the one hand, this study found that this learner could initiate self-employment early on by seeking out community members interested in compensating the learner for mending small clothing items, and, later, by undertaking larger jobs once additional micro-trade skills were harnessed. On the other hand, a learner lacking confidence in their ability and who faced limited communal connections would require greater encouragement and guidance. As quoted by participant 2, this encouragement and guidance was necessary when a learner rejoined school, only after becoming pregnant. Participant 2 delineates the stark difference in guidance and mentorship in his school versus a private school.

> [00:08:11] And it has been a major issue and it's not only those areas even in my school at MPESA Foundation Academy, the student was given a scholarship and the students and she was a girl and she was able to gain the scholarship to our school. But when she went back home, you see the difference in terms of the environment at school and at home, which are not matching. The men in the community saw that she's right for marriage at that tender age. And there she got pregnant she had to actually stay at home for more than one year without going to school. You know, in the time when we were trying to find out how we can support her, if it was not for the determination of the school to get back to get her back to school. Actually, if she was in a public school, that would have been the end for her.

This study found that the model developed here would therefore also require a more hands-on approach and teaching that concerned methods of marketing oneself and formulating connections within one's community. Unlike many tertiary programs that prescribe impersonal factors to test for certification, this study found that highly local and modular factors−such as consumer

feedback, mentor guidance, and learner's teaching skills to other learners−were more adroit for each learner to test themselves throughout (and not simply after) the program. Overall, entrance to and participation throughout the program may require greater or lesser guidance to ensure the learners' personal goals are met, and identifying the issues underpinning where each learner is will help them propel forward.

Second, the study found that personalized goals could explore and account for the alternate nuance in the testability of this micro-trade model. When success is measured by the initial goals established for each learner, testability allows for the documentation of growth, change, and evolution as well as the learner's personal introspection as they engage education through micro-trade. Reflection can be captured in a variety of ways: verbal intake and exit interviews, or daily journaling or drawing for those who are unable to write. Ensuring appropriate documentation and reflection for the learner should help guide them to solidify what success means and feels like in their specific life given their unique experiences and circumstances. This type of reflection, personal growth, and evolution of the learner was encapsulated in a story told by participant 4. This participant likens the process of personalization to making ugali with his mother, a popular type of porridge enjoyed by many Kenyans.

> [00:41:50] However, when you think about the way my mom taught me how to cook, there wasn't that aspect of failure. No she was like, okay, to cook ugali, you know, hot water, put flour, you know, make ugali and then you make the ugali. And then she's like, okay, and you have not made the ugali very well. Then she's like, Let's eat together then, you know, we eat. And then you realize yourself that actually my ugali is not as good as my moms. Can I do something better next time?

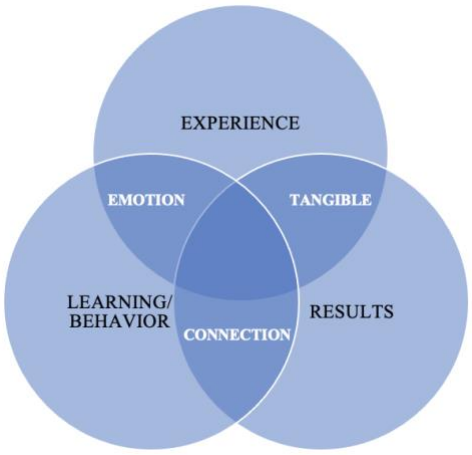
> Okay. And your mom would not discourage you because you said, oh, no, no, no tomorrow you can maybe make it stay long on fire and then it will improve. So you are eager tomorrow to try again, and prepare, you know, it will bet better and get it. So over time you you'll keep improving. So that is not viewed as failure, it is viewed as an opportunity for growth for learning for something which doesn't happen in our education system.

Third, this study found congruence with Kirkpatrick's Model of Education when projecting both short- and long-term evaluations of the model. This study's long-term objective for its model of micro-trade education was to achieve economic independence for each learner; however, those outcomes may not be realized for months or years after the learner has phased out of the program. Smaller short-term measurable objectives must be captured to ensure the model maintains credibility from inception to completion. The three overarching pillars of success for micro-trade are impact, satisfaction, and output. Utilizing facets of Kirkpatrick's model of education was one way to evaluate the micro-trade model and to strategically assess and test the presence of these pillars of education. This study found that Kirkpatrick's model allowed an outline for future testability of micro-trade while creating a chain of evidence

showing the value of each objective, as noted in Figure 11.

Figure 17

Testability of Micro-Trade



Kirkpatrick's Model of Education: Kirkpatrick's model assesses the effectiveness of educational programs and models at four distinct levels: experience, learning, behavior, and Results. First, the reaction or response each learner has to the micro-trade model must be evaluated and must include the experience of each learner. Second, evaluation of learning based on an increase in skill and knowledge of a specific micro-trade must be assessed. Third, a shift in learner behavior or gradual improvement of a micro-trade should be transferred into the workplace. Finally, results or the overall impact micro-trade has on the learner must be assessed.

Overlapping with Kirkpatrick's model are the design principles that this study found in its analysis of RQ1, which can ensure future testability of the micro-trade model. Future testability would include long-term statistics collected among a specific Kenyan population over time. Enclosed in these statistics would be sustainability of micro-trade, boost or change in feelings of success within the vulnerable youth, interest of micro-trade within the community, marked growth or additional micro-trade schools opening, political or financial backing of

micro-trade, and sustainability or reliance on the Kenyan population to continue the program. In analyzing the constructs linking to the four levels of Kirkpatrick's model of education, specific utterances from interview participants delineate how this model can be tested and will be discussed further in Chapter 5.

Chapter 5: Discussion

The purpose of this study was to create a model of tertiary vocational education in Kenya. Through the examination of eight participant interviews, this research aimed to provide insights of what this model would look like and facets of what the model would address. This study focused on face-to-face interviews conducted in Kenya (seven) and interviews conducted over telecommunication (one) over a period of three months in 2022. This research used a qualitative ethnographic approach leveraged by the tool of epistemic network analysis to analyze the collective data to address the following research questions:

- RQ1: What design principles for a micro-trade model will most effectively create economic opportunity for vulnerable populations in Kenya?
- RQ2: What is one model of education that incorporates these design principles of micro-trade?
- RQ3: What factors will ensure the testability of this micro-trade model?

Utilizing a constructivist approach and the paradigm of DBR, the creation of a micro-trade model intends to perpetuate a necessary shift for vulnerable learners as they seek an avenue of education allowing for economic stability. Invoking DBR permits the model to incorporate diverse perspectives, while accommodating exigencies and complexities. In utilizing the DBR methodology, the model of micro-trade attempts to address current gaps in tertiary TVET models, while also revising, and then extending them. While DBR was developed under the assumption that context affects learning while systematically improving a learning environment, the data in this study exposed underlying dynamics that simply were not evident throughout the planning of this proposal. While this study sought to, and creates, a single model for tertiary learning, more imperative and salient issues of corruption and basic needs arose during data

collection. These issues required a significant shift of the underlying intent and purpose of micro-trade.

The results of this study support the need for a model of tertiary vocational education that is small in duration and scale, proceeds with adequate resources and infrastructure to didactically incorporate practical skills, and, finally, promotes entrepreneurial independence. Furthermore, this model intends to give Kenyan learners who are unable to advance or finish their compulsory years, another option of learning a skill or trade while in pursuit of economic independence. The study demonstrates a strong correlation between many global issues identified in the SDGs as identified by the UN, in demanding equal opportunities for all vulnerable people while shifting toward a positive transformation of health and prosperity through education. The analysis supports many of the theoretical approaches and literary works, as referenced in Chapter 2, that address issues of corruption and basic needs of vulnerable youth in Kenya. These include the history of education in Kenya, the impotence behind competency-based learning, increasing unemployment rates among Kenyan youth, disruptive innovation, and transformative learning.

Implications

As discussed, the theoretical approaches pertinent to this study prior to data collection included methodologies and priorities of evoking a disruptive model of learning while ensuring a learner-centric approach. However, due to unexpected and salient implications some adjustments were necessary.

Design Based Research

This study also sought to create an appropriate micro-trade model in hopes of providing economic stability for young adults in Kenya utilizing the research design, DBR. DBR was developed under the assumption that context affects learning while systematically improving a

learning environment and can be used to test and revise iterative implementations of certain designs, theories, or models (Brown et al., 1996). However, given the amount of time with each participant in the interview sessions alone, additional iterations and cycles of the model were not possible. Expectations to apply DBR are necessary to test and refine the model and will be necessary to determine its efficiency.

The research intended to build upon a synthesis of these current models, approaches, and theories to create a model of tertiary education in an attempt to produce far-reaching change within a sub-Saharan African context. Time in Kenya made it evident that the vulnerable populations of Kenya experienced fundamental struggles for survival and with corruption. However important, the initial theoretical approaches did not broach this reality. While utterances of general conflict, controversy, and significant barriers to entry continued to emerge from the participants' remarks while they spoke of education, it was necessary to address these additional dimensions. These dimensions were addressed in the considerations as they relate to the constructs proposed in Chapter 3, as well as a thematic analysis of literature review referenced in Chapter 2.

Initial Constructs: The initial intention of this research sought to create a model of tertiary education in hopes of increasing levels of economic independence among the vulnerable Kenyan youth. While many scholarly articles, journals, publications, and statistical data identify ongoing concerns of economic instability as it pertains to the impending youth bulge, many programmatic policies and initiatives have emerged and have helped foster this population. These policies and initiatives have addressed educational factors of poor infrastructure, lack of access, learner-centric curriculum, and even advancements toward alternative tertiary schools. Upon conducting

interviews to formulate this model, several unexpected and much more salient variables surfaced including basic needs and corruption.

Salient Constructs: The participants interviewed for this research project were selected utilizing convenience sampling, in that they knew of, worked with, or had met the researcher in the past. Convenience sampling is key, as the participants enjoyed a certain openness and trust established with the researcher allowing them to expose personal stories of instability and tragedy they had either encountered or had witnessed in their community. One such story was told by a participant describing circumstances of corruption while they themselves were on a job interview. During this job interview the employer sensed the interviewee was eager for employment. The employer then requested a stipend from the interviewee solidifying the employment contract. Unable to afford the stipend, the interviewee was then asked to solicit their body. Declining this second request, the interview concluded, and the candidate's credibility was ruined when the employer openly degraded them among the community. Participants spoke of youth attending compulsory and tertiary institutions in acquisition of food as their only source of sustenance, and a young woman who suicided after belittlement by her own educators, who publicly humiliate vulnerable girls' lack of knowledge and access to feminine hygiene. Recurring trends of substantial vulnerability and the overarching need for fundamentals arose, and Maslow's Hierarchy of needs was integrated into the constructs necessary to underpin the application of the micro-trade model. As a result, constructs of basic needs, controversy, and barriers to learning were added.

Thematic Analysis of Literature: Further reflections of the literature, as referenced in Chapter 2, were reviewed to see if the issues of corruption and the necessity of basic needs metastasized. Inclusive of the impending issues of corruption and necessity of basic needs, this

research confirms both alignment and misalignment with the initial literature review, as discussed in Chapter 2. Alignment, as it is defined and pertains to this study, recognizes and supports the unexpected findings from the research. Misalignment, as defined and pertains to this study, does not necessarily recognize the issues of basic needs or corruption (and that is reasonable and even to be expected). This misalignment is permissible because these pieces of literature still provide significant contribution to the establishment of micro-trade and are prevalent when considering best practices in tertiary learning. Although this study completed a thorough, detailed, and systematic literature analysis, this study does not presume to have exhaustively encountered all possible studies and literary works which may mention issues of basic needs and corruption as they pertain to the vulnerable population in Kenya. Categorically referenced in Chapter 2, literary works that support and address issues of corruption and basic needs of vulnerable youth in Kenya include the history of education in Kenya, the impotence behind competency-based learning, increasing unemployment rates among Kenyan youth, disruptive innovation, transformative learning, and UNESCO's Sustainable Development Goals.

Corruption metastasizing as bribery is quite common in Kenya. Institutions and individuals unwilling to engage in such malfeasance may find it difficult to pursue personal advancement including the procurement of employment in hopes of economic independence (Adegbile & Sarpong, 2017). However, institutions or individuals may implore the theoretical approach of disruptive innovation in hopes of circumventing this salient issue. Backing the findings in this study, the theory of disruptive innovation states that markets are truly disrupted when a simple, sustainable, and obtainable innovation is brought to a wider set of stakeholders at an affordable price. Rendered to education, disruptive innovation seeks to enhance, engage, and promote a learning environment advantageous to the learner. Authors Christensen and Raynor

(2013) suggest that control of corruption in Africa and improvement of regulatory quality can be managed by leveraging the theory of disruptive innovation. Freire's transformative learning theory supports interventions against the emergence of corruption and for the necessity of basic needs as it pertains to the context of this study. Recapitulated by Freire (1996), learning is based on a person's own experience, and education plays an active part in the formation of their self-identity. Freire's work speaks to the necessity for a learner to develop skills to ask questions in accordance with their world, in hopes of them acting on issues that influence and shape their lives. The requirement for learners to constantly strive toward and improve on their personal circumstances, conditions, and environments is poignantly cited in Freire's *Pedagogy of The Oppressed* (1968), which underscores the contradiction between oppressed and oppressors as well as how oppression may be overcome.

Reviewed from a historical perspective, existing literature notes that Kenya's colonizers marginalized vulnerable Kenyans and regarded them as having little to no philosophical understanding (Ngubane-Mokiwa, 2016). Underpinned by religious persuasion and force, Kenyans abandoned their culture, indigenous knowledge, political structures, socio-cultural systems, and core philosophies. Presently, the current CBC system of education seeks to undo the lingering effects of colonization by leveraging new pedagogical approaches to empower learners and nourish economic viability. This new system also attempts to thwart the escalating number of vulnerable street children, better assist learners unable to meet basic fluency standards, and benefit the vulnerable and poorest learners. Aligned with this study, the literature notes that vulnerable youth synchronize with damaging effects on communities, society, economies, and individuals themselves. Damaging effects upon these vulnerable youth who are unemployed are likely to ineffectively contribute to the development of their communities and

have fewer opportunities to exercise their rights as citizens. In Kenya, youth unemployment is an important policy issue because young men and women today face uncertainty in their hopes of undergoing a satisfactory transition in the labor market. Without a positive transition into the labor market, many vulnerable learners are left in perpetual economic deprivation and are unable to maintain necessities of food, shelter, and safety. Deprivation often amplifies disparity, and it perpetuates cycles of corruption; many are asked to provide monetary stipends or even sexual acts to employers simply to gain or retain employment.

As noted by the United Nations (2021), the SDGs cover an array of global issues and demand equal opportunities for all people while shifting toward a positive transformation of health, prosperity, education, human rights, and peace. Supporting the findings of this study, the literature pertaining to the SDGs, specifically SDG four, seeks objectives toward an equitable and quality education to promote lifelong learning opportunities for all. The UN recognizes the need for free, equitable and quality education for all learners with the understanding that equal access should be noted and established to the vulnerable. Pertaining to the school environment itself and to the struggle for fundamental human needs that many learners face, the SDGs highlight the need to address issues of safety, inclusive learning, and corruption.

Recommendations

The following table summarizes the literature mentioned in Chapter 2 as it correlates to this study. Table 14 also offers suggestions for the implementation of micro-trade to stakeholders.

Table 14

Suggested Methods of Implementation for Micro-Trade

Stakeholder	Implementation Strategy	Referenced Literature
Educators and Mentors	Meeting learners where they are and ensuring targeted and hands-on learning	Competency-Based Learning
	Awareness and deep understanding of vulnerable learners within small communities: cultural awareness and compassion while maintaining dignity within a supportive learning environment	Historical Practices
	Establishing measurable and learner-lead goals toward achievement of personal success	Learner-Centric Learning
	As learner progresses toward acquisition of goals, educator or mentor slowly scales back level of involvement and allows learner to pursue what they have learned within the context of their local community	Scaffolding
	Collaboration with other schools to identify needs of learners as well as best practices. Establishing communal "think tanks" to problem solve toward streamlined ways to implement micro-trade	Transformative Learning
	Encouragement of learners to glean a sense of self and an ability to market their learned trade toward becoming economically independent	Youth Unemployment
Non-Educators	Supporting the funding of existing and new tertiary initiatives	Disruptive Innovation
	Slowing and or extinguishing patterns of corruption through public speaking engagements or communal meetings	Historical Practices
	Creation of new policies and speaking out to promote awareness of corruption and lack of basic needs to vulnerable communities	Transformative Learning
	Encourage vulnerable learners to embrace alternative models of learning	Youth Unemployment
Learners	Identify goals early on and maintain stringent records of growth and continued reflection	Competency Based Learning
	Starting small, acquiring pertinent skills of trade while fine-tuning skills	Disruptive Innovation

Stakeholder	Implementation Strategy	Referenced Literature
Learners	Identifying historical issues causal to unfavorable circumstances, and hunting for alternative avenues of economic independence	Historical Practices
	Engagement in participatory learning and sharing of trades, however small, to other vulnerable learners in hopes of creating a network of support and like-minded individuals	Transformative Learning
	Turning away from corruption and seeking mentorship in the pursuit of personal marketing and entrepreneurial skills	Youth Unemployment

Although the micro-trade model may contribute to vulnerable Kenyan learners becoming economically independent, this study is not an effort to dispose of already existing tertiary models of education. Instead, it aims to magnify relevant and equitable educational practices proactively addressing the impending youth bulge and current unemployment rates among vulnerable Kenyan youth. Unexpectedly, this study revealed existing and salient issues faced by vulnerable youth including corruption and lack of many basic human needs. It acknowledges the struggle for basic human needs many vulnerable Kenyans face, and the subsequent despair permeating many communities as they struggle with corruption throughout the employment process.

While these major issues are understood as cyclical or as the root cause of unemployment, this study suggests further research and additional models of tertiary learning are needed that include strong pillars of mentorship and psychological support. This consideration emerges from a recognition that, if corruption and a lack of basic needs persists, unemployed Kenyans may lose hope and perpetuate cycles of desperate or unlawful behaviors. This study

urges stakeholders to understand that vulnerable Kenyans can gain economic stability through mentorship toward employment opportunities.

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APPENDIX

IRB Notice of Approval for Human Research

Pepperdine University
24255 Pacific Coast Highway
Malibu, CA 90263
TEL: 310-506-4000

NOTICE OF APPROVAL FOR HUMAN RESEARCH

Date: July 01, 2022

Protocol Investigator Name: Kristina Lux

Protocol #: 22-05-1852

Project Title: Vocational Tertiary Education of Young Adults in Kenya: Model Development

School: Graduate School of Education and Psychology

Dear Kristina Lux:

Thank you for submitting your application for exempt review to Pepperdine University's Institutional Review Board (IRB). We appreciate the work you have done on your proposal. The IRB has reviewed your submitted IRB application and all ancillary materials. Upon review, the IRB has determined that the above entitled project meets the requirements for exemption under the federal regulations 45 CFR 46.101 that govern the protections of human subjects.

Your research must be conducted according to the proposal that was submitted to the IRB. If changes to the approved protocol occur, a revised protocol must be reviewed and approved by the IRB before implementation. For any proposed changes in your research protocol, please submit an amendment to the IRB. Since your study falls under exemption, there is no requirement for continuing IRB review of your project. Please be aware that changes to your protocol may prevent the research from qualifying for exemption from 45 CFR 46.101 and require submission of a new IRB application or other materials to the IRB.

A goal of the IRB is to prevent negative occurrences during any research study. However, despite the best intent, unforeseen circumstances or events may arise during the research. If an unexpected situation or adverse event happens during your investigation, please notify the IRB as soon as possible. We will ask for a complete written explanation of the event and your written response. Other actions also may be required depending on the nature of the event. Details regarding the timeframe in which adverse events must be reported to the IRB and documenting the adverse event can be found in the *Pepperdine University Protection of Human Participants in Research: Policies and Procedures Manual* at community.pepperdine.edu/irb.

Please refer to the protocol number denoted above in all communication or correspondence related to your application and this approval. Should you have additional questions or require clarification of the contents of this letter, please contact the IRB Office. On behalf of the IRB, I wish you success in this scholarly pursuit.

Sincerely,

Judy Ho, Ph.D., IRB Chair

cc: Mrs. Katy Carr, Assistant Provost for Research