

Aligning intent and practice: Unlocking Kenya's competency-based education potential through critical thinking

Thomas Nanyingi D. Namwambah*

Department of Philosophy & Religious Studies, Kenyatta University, Nairobi, Kenya.

*Corresponding Author Email: namwambah.thomas@ku.ac.ke

Abstract:

Competency-Based Education (CBE) is Kenya's current educational model that focuses on a student's measurable mastery of specific knowledge, skills, and behaviors, rather than the amount of time spent in a classroom. It moves educational objectives from the previous content-laden 8-4-4 system that was imbued with content, memorization, rote learning, and classroom competition, to an educational system that promotes a flexible, learner-centered approach designed around real-world applications. This paper argues that shifting to inquiry-based pedagogy and project-based assessment is essential for implementing the Competency-Based Curriculum (CBC). The analysis posits that all core CBC competencies, including communication and collaboration, are tenable only through the systematic infusion of critical thinking within subject domains. By embedding critical inquiry into daily instructional designs, educators directly bridge the gap between academic theory and practical application. This alignment fulfills the University Competency-Based Education Framework (UCBEF) vision of creating graduates who value practical exposure and industry attachment. Furthermore, it supports progression across the Kenya National Qualifications Framework (KNQF) Level Descriptors, ensuring that clear evidence of advanced cognitive skills replaces mere seat time.

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1. Introduction

The Kenyan educational landscape is undergoing its most monumental shift since independence. As the nation transitions from the examination-heavy 8-4-4 system to Competency-Based Education (CBE) Frameworks - the metrics of learner success are being fundamentally redefined. Under the stewardship of regulators like the Kenya National Qualifications Authority (KNQA) and the Commission for University Education (CUE), education is no longer a race for rote memorization. Instead, it is a deliberate journey to nurture holistic capabilities, values, and real-world skills. At the absolute heart of this transformation lies the critical faculty - the cognitive engine that empowers learners to process information independently, ethically, and productively.

This article looks at the central role critical thinking can play in the navigation of this terrain across the crucial upper tiers of Kenya's academic continuum. It spans from Senior School (Grades 10–12) pathways through to University and Tertiary Education. These developmental stages represent a vital transition. In Senior School, learners specialize within distinct learning pathways - STEM, Social Sciences, or Creative Arts and Sports. In Higher Education, they refine these disciplines into professional mastery under the guidelines of the University Competency-Based Education Framework (UCBEF).

Crucially, the article proposes that critical thinking cannot be taught as an isolated, abstract concept. Grounded in the core pillars of the UCBEF, it posits that human critical faculty must be explicitly cultivated through critical thinking across all subject domains via a blend of skills, values, and practical learning. It proposes that higher education institutions must shift away from traditional lecture-heavy instructional formats, and embrace an architecture oriented toward measurable Learning Outcomes, where students active-learn through project-based learning, experiential tasks, and community-based research. It avers that critical thinking is the CBE motherboard which manifests differently in every discipline, its principal core concern remaining constant.

2. The Birth of Competency Based Education (CBE) in Kenya

Kenya's shift to Competency-Based Education (CBE) evolved from the initial Competency-Based Curriculum (CBC) that began in 2017 to replace the rigid, exam-oriented 8-4-4 system. The system introduced a 2-6-3-3-3 structure of education which focuses on developing practical skills through continuous assessment, projecting specialized career pathways which are determined on the learners' transition to senior schools, then to higher institutions of learning.

The main historical milestones of this shift entails the introduction of the 8-4-4 system (1985) to replace the previous 7-4-2-3 system following recommendations from the Mackay Report of 1982, with the aim to make education more practical, vocational, and geared toward self-reliance. It however, gradually grew heavily exam-driven and focused on rote memorization, becoming a burden on both the parents, learners and educational goals. 2017 saw the birth of CBC. This followed the government's declaration that the 8-4-4 system was untenable, thereby introducing CBC (2-6-3-3-3) with a phased rollout framework under the Kenya Institute of Curriculum Development (KICD) to prioritize practical competencies over pure theory and rote learning as evidenced under the 8-4-4 system. The CBC was later refined into Competency

Based Education (CBE) in 2025. First, the shift, though insignificant, was meant to cut bureaucracy, balance continuous assessments, and reintroduce targeted flexibility like practical mathematics. The same year, 2025 witnessed the pioneering classes under the competency framework officially enter Senior Secondary School (SSS) pathways (Amutabi, M.N. 2003).

This transition has marked a radical and structural shift in Kenya's education system. The old model of 8-4-4 has been replaced with 2 years of pre-primary, 6 years of primary, 3 years of junior school, and 3 years of senior school. In this new system, emphasis is put on real-world application, values, and talent nurturing over high-stakes single examinations. The system is defined by various dynamic pathways and structural design available to students in Kenya's education landscape.

3. The Philosophy of CBE

The founding philosophy of Competency-Based Education (CBE) centres on shifting instruction from passive, time-bound content delivery to the active, demonstrable mastery of practical skills, knowledge, and attitudes. Rather than measuring success by seat-time, CBE prioritizes what a learner can actually *do*.

The core pillars of the system include: i) *Pragmatism*: - it's grounded in John Dewey's ideals - CBE emphasizes learning-by-doing, experiential problem-solving, and practical application over rote memorization; ii) *Constructivism* – it views the learner as an active agent who builds personal understanding and competence through interaction with real-world environments and reflection; iii) *Progressivism & Humanism*: - it focuses on the whole student, prioritizing individual learning styles, personal agency, self-directed pacing, and continuous lifelong adaptability; and, iv) *Social Reconstructionism* - it aims to align educational outcomes directly with societal needs, economic relevance, and the demands of the 21st-century workforce. (KICD, 2017).

Key operational principles of CBE entails: i) *Mastery-based progression* – focusing on students advancing upon proving competence rather than completing fixed calendar hours; ii) *Learner-centered design*: - emphasizing customized paths to suit diverse capabilities and prior knowledge; and, iii) *Authentic assessment* - prioritizing evaluation success via practical tasks, portfolios, and observable behavior rather than traditional high-stakes written exams alone. It allows students to move forward by demonstrating mastery rather than sitting through traditional class time:

The implementation of Competency-Based Education (CBE) directly translates its founding philosophy into a national framework as the model holistically replaces the traditional, exams-driven 8-4-4 system with an inclusive, learner-centered architecture designed to nurture every learner's potential.

The philosophy in action defining CBE shifts the educational focus from academic memorization to developing practical capacities. It structures learning around seven core competencies, namely:

- i. *Communication and Collaboration*: Working effectively in teams and sharing ideas clearly.

- ii. *Critical Thinking and Problem Solving*: Analyzing situations to find creative solutions.
- iii. *Creativity and Imagination*: Expressing original ideas through arts, design, and innovation.
- iv. *Citizenship*: Understanding national identity, social justice, and civic responsibilities.
- v. *Digital Literacy*: Navigating and utilizing technology safely and productively.
- vi. *Learning to Learn*: Developing a passion for lifelong, self-directed knowledge acquisition; and,
- vii. *Self-Efficacy*: Building personal confidence, emotional intelligence, and self-drive.

Although none of these competencies has been pronounced predominant over the others, debates on CBE have put more emphasis on critical thinking and problem solving. Being what it may, it's evident from educational perspectives and good practices, that the CBE competencies can easily, and only be tenable through the "*teach for critical thinking*". In this regard, the architects of CBE need to focus on how, by making critical thinking an umbrella competence to the rest would catapult the development and tenability of all other intended competencies.

The above observation is anchored on the fact that the very founding philosophy of CBE provides the "why," without a substantial trigger, while the seven competencies provide the "how," whereas the core values are presumed to provide the moral "anchor." Together, they form an inseparable triangle, which, again, focus on thinking as a crucible to the actualization of the competencies:



Understanding the practicality of CBE philosophy will, therefore, solve many of the tailbacks bedeviling the implementation of the educational system. This is because the CBE philosophy inspires values by cultivating the mind into a critical faculty capable of discerning and acting judiciously. The philosophical foundation relies on humanism and progressivism, which treat learners as whole people, not just academic storage units. The core values that include love, responsibility, respect, unity, peace, patriotism, social justice, and integrity are cardinal to this philosophy. Consequently, instead of viewing classmates as competitors to beat in a national ranking, the CBE philosophy demands that learners see each other as human beings deserving of respect and love. (KICD, 2017).

Second, the CBE values ground the competencies in such a way that their interconnectedness adds value to the entire spectrum of education system. In an error where the advance in technology is faster than human comprehension, competencies without moral values can be dangerous; technology skills without integrity leads to cybercrime, and strong communication without respect leads to manipulation. Values ensure competencies are used ethically.

Third, understanding the value of citizenship, patriotism and social justice is key to building a cohesive, and self-respecting nation. The competency of *Citizenship* (understanding one's community) is of no value without the core values of *Patriotism* and *Social Justice*. This value drives the students to use their citizenship to love, embrace and help others.

Fourth, to effectively *collaborate* (competency), students must actively practice *unity* and *respect* (values) for diverse ideas within their groups. They must learn and appreciate the cultural diversity, thinking, and ways of life of other community members, and take pride in the diverse nature of their society. This is what the values of communication and collaboration, unity and respect is all about.

Fifth, the values of self-efficacy, and responsibility. The competency of *Self-Efficacy* (self-drive and confidence) relies entirely on the core value of *Responsibility* - taking ownership of one's actions, time, and academic progress. Taking ownership means shifting from a passive participant to the driver of your life. By fully owning your actions, time, and academic progress, you stop blaming external factors and start creating real solutions. This mindset builds self-confidence, drives continuous growth, and transforms daily habits into long-term traits.

Sixth, digital literacy, and integrity. Digital literacy and digital integrity are vital tools in the modern world. Digital literacy gives you the skills to find, use, and share information safely using technology. Digital integrity means acting with honesty, respect, and responsibility online. Together, digital literacy, and integrity help people to avoid scams, build trust, and succeed in school, and later in life.

In applying digital literacy (competency) to navigate online tools, the learners must anchor it in *Integrity* (value) to avoid plagiarism, cyberbullying, or dishonest digital habits. The three aspects defining CBE – (philosophy, competencies and values) are, in the real-world application (the output) entwined. When philosophy, competencies, and values align, education moves away from just passing tests. For example, during a Community Service Learning (CSL) project, a student utilizes *Critical Thinking* (competency) driven by *Love and Responsibility* (values) to solve a local pollution issue. This achieves the ultimate *Social Reconstructionist* goal of the CBE philosophy - building a balanced, ethical, and highly skilled society.

The above values are essential to CBE in the sense that they:

- i) *Combat "Intellectual Criminality"*: Developing practical skills like *Digital Literacy* without *Integrity* creates smart cybercriminals. Values ensure that the 21st-century skills are used ethically.
- ii) *Transforms Classrooms into Communities*: Replacing high-stakes exam competition with *Love* and *Unity* encourages students to celebrate each other's diverse pathways and paces rather than seeing peers as rivals.
- iii) *Drives Accountability*: The mastery-based progression of CBE demands that learners take personal *Responsibility* for their assignments, portfolio evidence, and skill development.

4. Challenges to CBE System

Since its inception, this shift has come at a cost as various challenges and bottlenecks continue

to emerge. They range from deep structural, financial, and cultural hurdles. Basic to these challenges by public schools, educators, and families include:

(i) Inadequate School Infrastructure

- *Missing Laboratories:* Specialized senior school tracks like STEM suffer heavily from a widespread lack of functional science labs and technology workshops.
- *Overcrowded Classrooms:* High student enrolment outpaces physical expansion, leading to heavily congested classrooms that restrict practical, hands-on learning.
- *Unequal Resource Distribution:* Digital tools and textbooks remain highly scarce in rural and marginalized communities compared to urban schools.

(ii) Teacher Gaps and Workload Pressures

- *Rushed retraining:* Many veteran educators received brief, superficial training workshops, leaving them ill-prepared to teach learner-centered pedagogies.
- *Severe understaffing:* Public schools face chronic shortages of specialized teachers trained for specific technical, artistic, or science-based tracks, forcing non-knowledgeable teachers to be assigned to teach.
- *Administrative fatigue:* Transitioning from exam scoring to tracking continuous assessments, student portfolios, and projects creates massive administrative burdens.

(iii) Financial Burden and Parent Confusion

- *Escalating costs:* Practical assignments force parents to consistently purchase expensive learning materials, printing services, and craft tools.
- *Misunderstood parental roles:* Many households struggle to assist with complex, homework-heavy project requirements due to unfamiliarity with the system.
- *Pathway chaos:* Students frequently choose senior school career pathways based on social peer pressure or parental desires, leading to massive waves of students requesting to change tracks when they transit to senior schools. This is likely to reflect more when they get to universities.

(iv) Systemic and Transition Friction

- *Placement gaps:* The transition to Grade 10 senior schools has triggered massive systemic backlogs and delayed school reporting for hundreds of thousands of learners due to placement inefficiencies.
- *Inequality gaps:* Wealthier families easily fund out-of-school technical training and private resources, leaving underprivileged public school students at a distinct disadvantage.

In addressing these challenges, the Commission for University Education (CUE) is systematically enforcing the University Competency-Based Education Framework (UCBEF) through collaborative curriculum overhauls, stakeholder consultations, and institutional readiness guidelines. While CUE primarily regulates tertiary institutions rather than junior and senior schools directly, it is actively bridging the gap to prepare universities for the pioneer Competency-Based Education (CBE) cohort transitioning to higher education in 2029. The process is progressive, and intentionally coordinated with phased approach that entails the following:

- *Enforcement of the University Competency Based Education Framework (UCBEF):* This entails; i) guiding universities to review, redesign, and cluster their academic

programs away from traditional lectures toward hands-on, experiential, and pathway-specific models, ii) collaborating with education mandated institutions such as the Kenya National Qualification Authority (KNQA), Kenya Institute for Curriculum Development (KICD), and the Kenya National Examination Council (KNEC) to ensure seamless credit transfers and qualification pathways from basic education up to the university level; and, iii) establishing requisite benchmarks for universities to retool and up skill academic staff in competency-based pedagogies and modern assessment methods.

- *Transition and resource challenges:* This is one of the stone-faced challenge that universities dread to face. In addressing this challenge, the Commission for University Education (CUE) has openly flagged this major systemic challenge, including a massive national funding deficit affecting laboratories, digital tools, and physical infrastructure needed for practical learning. The Commission is also working with individual universities (such as the University of Nairobi's internal faculty models) to conduct localized needs assessments addressing governance, infrastructure, and inclusive admission criteria. This assessment is meant to give a clear picture on the needs requirement by university schools and faculties and find the best way to addressing them before the first CBE cohort in 2029. Also, through national dialogue workshops, CUE is establishing a clear execution timeline up to 2028 to catch and fix implementation bottlenecks before the 2029 transition deadline. These dialogues, however, are limited due to scarce funding and their results might not reflect the actual state of infrastructure and competent human resource to handle the transition come 2029.

Beyond these measures, Kenya's public universities are currently experiencing a severe fiscal and operational crisis. The higher education sector faces a total financing deficit of roughly 100 billion Kenya shillings in accumulated debt, heavily straining day-to-day operations and stalling the development of critical learning infrastructure. At a glance, the accumulated debt stands as follow:

Reference	Insolvent Universities	Amount (KShs.s.)
Public Universities Accumulated Debt		100.3 Billion
Current Year General Funding Gap		27.97 Billion
Insolvent Public Universities	13 out of 23	
Student Financing Gap (HELD/Scholarship)		55.8 Billion

The Specifics of the above are:

- ✓ The Ministry of Education and the Universities Fund have officially flagged a shortfall of nearly KShs. 29 billion for university operations in the current fiscal cycle, severely underfunding the New Higher Education Funding Model.
- ✓ Public universities collectively owe a massive KShs. 100.3 billion debt. Egerton University leads with over KShs. 25.5 billion, followed by the University of Nairobi (~KShs. 17 billion), Kenyatta University (~KShs. 12.8 billion), and Moi University (~KShs. 10.4 billion).
- ✓ The Higher Education Loans Board (HELB) secured only KShs. 56.3 billion against an ideal operational requirement of KShs. 112.1 billion. This leaves a KShs. 55.8 billion student financing gap; and,

- ✓ At least 23 public universities risk insolvency. While the country President noted that 10 have shown signs of recovery through internal revenue generation, major institutions like Moi University still require billions to fully stabilize and have had to issue redundancy notices.

Beyond the fiscal and operational crisis, public universities are also faced with infrastructure hurdles that threaten the smooth transition of the CBE first cohort to university education. Major among these include:

- i) *Stalled Capital Projects* - millions of shillings remain locked in half-completed lecture halls, dining facilities, and administration blocks because universities cannot pay outstanding contractors' fee: e.g. at Moi University, hostels, a modern Law School library, a Multi-purpose Amphitheatre, and a Faculty of Science facility altogether sit incomplete. The historic Margaret Thatcher Library has simultaneously suffered severe degradation due to a lack of routine structural maintenance; at Kenyatta University, 6 projects remain stalled, totaling over KSh 2.1 billion. These include an unfinished Children's Hospital, a half-built School of Business, and a sidelined Dairy Technology farm; while at Egerton University, more than KSh 1 billion worth of capital projects are frozen, including a massive central library, the primary administration block, and core science laboratories
- ii) *Dilapidated and non-functional facilities*: The current facilities in most public universities are dilapidated, with total lack of modern tech, advanced machinery, and digital toolkits mandated by the incoming Competency-Based Education (CBE) pathways. The Outdated practical labs are defined by broken, analog, or entirely absent equipment. While the University Competency-Based Education Framework (UCBEF) demands that learning shift from theoretical lectures to practical, industry-linked skill building, the physical tools on the ground remain relics of the old 8-4-4 system. Concrete examples of these outdated spaces and the specific tech gaps that might haunt the effectiveness in the implementation of CBE pathways include:
 - a) In the fields of medical, biomedical & health sciences pathway, most anatomy and biochemistry practical rooms in universities today rely on cracked optical microscopes, manual fluid pipettes, and basic glass beakers. The incoming CBE toolkit system expects digital diagnosis and data tracking. Kenya public university labs completely lack automated gene sequencers, digital Polymerase Chain Reaction (PCR), thermal cyclers, electronic spectrophotometers, and high-performance liquid chromatography (HPLC) tools to trigger CBE learning and ignite creativity and innovation.
 - b) The current reality for the engineering and manufacturing pathway is that mechanical and civil engineering workshops in public universities are dominated by heavy, purely manual lathes, analog milling machines, and mechanical drills from the 1970s and 1980s. CBE students cannot learn modern automated fabrication with such archaic technology. The lack of Computer Numerical Control (CNC) machinery labs, industrial 3D printers, robotic arms, and licensed Computer-Aided Design (CAD) or simulation software makes the realization of the intention of this pathway crippled or untenable. It's a huge CBE toolkit deficit that needs immediate attention.
 - c) Agricultural technology and food sciences pathway is not spared the need for infrastructural enhancement. In the current situation, crop and soil labs are

restricted to basic physical dirt-stirring exercises and manual moisture weighing scales, while the CBE toolkit demands for modern agronomy tracks; automated smart agriculture sensors, soil nutrient digital scanners, drone mapping telemetry software, and temperature - controlled hydroponic or vertical farming testbeds. The government must start to think seriously, and budget generously in order for CBE to become a reality effective 2029.

- d) For the Pure Sciences & STEM Pathway (Physics & Chemistry), the state of universities study space is pathetic. Chemistry and physics spaces resemble simple junior school layouts rather than advanced research centres. Students execute basic flame tests or manual titration using highly depleted or expired chemical reagents. The Labs face a total deficit of automated digital sensors, spectrometers, electronic data loggers, and advanced safety equipment like functioning industrial fume hoods or laminar flow cabinets, just to mention a few.
- e) The Digital Literacy and Computer Science Pathway: the reality in universities is that ICT labs across multiple campuses host bulky, low-RAM desktop computers running obsolete, unlicensed operating systems like Windows 7. These obsolete gadgets are a shame to be existing in universities in the 21st century. The CBE pathways place massive weight on 21st-century digital competencies. Yet, students lack access to Cloud computing sandboxes, advanced graphic processing units (GPUs) required to study Artificial Intelligence and Machine Learning, and secure terminal servers for cybersecurity simulations.
- iii) *Overstretched digital networks*: Presently, universities directly impair the implementation of university-level Competency-Based Education (CBE). The systems manifest a high probability in system crash, delayed feedback, and unequal student access. This raises a concern because, unlike traditional time-based grading, CBE relies heavily on continuous online assessments, real-time collaboration, and digital portfolio tracking to measure true skill mastery. When network infrastructure fails, it disrupts the immediate data flow required to track individual milestones, ultimately stalling a student's self-paced academic progression.

These connectivity issues create severe assessment bottlenecks and instructional challenges across the institution. Bandwidth constraints delay the uploading of large digital files, like video demonstrations or complex project files, while frequently dropping students from live group tasks and peer-review sessions. Furthermore, instructors lose the ability to update competency matrices instantly, leading to delayed feedback loops.

This infrastructure deficit also deepens equity gaps, as off-campus or rural students face severe learning disadvantages compared to peers with stable on-campus internet access. In practice, these network failures severely disrupt high-stakes competency evaluations across various disciplines. For instance, a nursing student attempting to upload a recorded video of a clinical procedure might experience a system timeout mid-upload, causing them to miss a strict competency deadline. Similarly, an engineering cohort submitting large digital blueprints for a design milestone might face weeks of grading delays because a lagging learning management system (LMS) prevents professors from providing immediate, formative critiques. Even interactive tasks suffer, such as when

education students use live video tools to demonstrate teaching skills, only for frequent disconnections to make a fair evaluation impossible.

To mitigate challenges associated with low-bandwidth environments, universities must shift from high-data, synchronous systems to data-light, flexible infrastructures, the primary goal being to ensure that network constraints do not stall student's ability to demonstrate mastery. In so doing, the following will apply: designing learning platforms to prioritize discussion boards, downloadable text, and offline modules over live video streaming by adopting the asynchronous-first architecture model; application of automated video compression by integrating tools into the university server that automatically shrink student-submitted video evidence before processing; use of LMS Offline Syncing - deploy Learning Management Systems (LMS) that let students complete modules offline and auto-upload progress when connected; and, use of Text-Based Alternatives - replace heavy multimedia assets with compressed PDFs, audio transcripts, and low-resolution image files.

Universities will also need to redesign their pedagogical instructions and approaches by: allowing students to build physical portfolios, code locally, or write documents that require minimal data to submit, call it Local Artifact Creation (LAC); embrace flexible submission windows by removing the rigid, single-hour submission deadlines to prevent simultaneous network traffic spikes from crashing local towers; use text-based, asynchronous rubrics for peer evaluation rather than requiring live, video-based group critique sessions through the distributed peer reviews; and finally; substitute live video presentations with compressed audio recordings or phone call evaluations with the lecturer.

The challenge can be further assuaged through the institutional support mechanics by, for example, installing local caching servers in university libraries to let students rapidly download content while on campus - On-Campus Edge Servers: Pre-loading entire semester competency frameworks, readings, and software onto physical flash drives for off-campus students - USB & Drive Distribution; Partnering with local telecom companies to subsidize or waive data charges for accessing the university's CBE platform - Zero-Rated Digital Portals; and, establish small, regional physical centers equipped with stable satellite internet for students living in remote areas - Community Learning Hubs.

The above limitations coupled with ill prepared lecturers in the dynamics of pragmatic knowledge transfer, with little or no knowledge at all in critical thinking, in what it consists, and how to infuse it within their subjects' domains, and the lack of responsiveness on the side of government to allocate sufficient resources to universities is an irredeemable barrier to UCBEF Rollout

Given that Kenyan public universities are deeply in debt, they cannot afford to buy the specialized software or expensive machinery required to satisfy the (CUE) benchmarks. As a result, lecturers will be forced to convert practical skills into "theoretical instruction" on a blackboard - meaning students will be tested on how to describe an advanced machine instead of how to safely operate it.

5. Invisible yet Relevant Stakeholders

It is not only the CUE, KNQA and the mainstream Ministry of Education that are addressing

the problems facing the implementation of CBE. In order to enable its structural and functional foundations, there is a multifaceted regulatory framework that onboard these agencies in the determination and implementation of the Curriculum Based Establishment (CBE) system in Kenya. The Kenya Institute of Curriculum Development (KICD) serves as the primary architect by designing the learning areas, subject pathways, and lesson time allocations. KICD directly dictates the specific teaching competencies and workloads required in schools.

Utilizing KICD curriculum design, the Teachers Service Commission (TSC) acts as the executive authority responsible for calculating and enforcing staffing levels across public institutions. The TSC analyzes student enrollment data against KICD's curriculum requirements to determine the optimal number of teachers per school, subsequently managing recruitment, deployment, and institutional compliance.

Supporting this structural framework, the Kenya National Examinations Council (KNEC) formulates assessment models that influence classroom contact hours and practical evaluation demands, while the Ministry of Education (MoE) provides the overarching national policy direction and infrastructural funding necessary to sustain these staffing allocations.

Concurrently, labor unions and academic associations represent the vital operational component of the CBE system, advocating for the workforce charged with executing the curriculum. The Kenya National Union of Teachers (KNUT) and the Kenya Union of Post Primary Education Teachers (KUPPET) actively engage in stakeholder dialogues to align staffing policies with realistic classroom conditions. These unions lobby regulatory bodies regarding the practical challenges of CBE implementation, such as addressing severe teacher shortages, mitigating increased teacher workloads, and demanding systematic retooling programs to match new learning areas.

At the higher education level, the Universities Academic Staff Union (UASU) influences the system by reshaping teacher educator training programs, and the retraining of university academic staff. This ensures that graduating educators and university faculties possess the pedagogical competencies required to feed into the CBE pipeline as the system expands into tertiary institutions.

On the institutional frontline, school leadership organizations serve as the critical feedback loop and execution mechanism for CBE directives. Associations like the Kenya Secondary Schools Heads Association (KESSHA) and the Kenya Primary Schools Head Teachers Association (KEPSHA) translate centralized staffing formulas into daily operational schedules. School heads directly manage the distribution of teaching loads, report localized staff deficits to the TSC, and highlight structural deficits, such as inadequate laboratories or learning materials, that hinder the fulfillment of CBE requirements. By balancing top-down administrative mandates from the MoE and TSC with the ground realities of the classroom, these diverse stakeholders collaboratively negotiate, refine, and sustain the functionality of Kenya's educational workforce framework.

University administrations facilitate the Competency-Based Education (CBE) framework by strategically aligning higher education with new curriculum demands, focusing on faculty retooling, curricular restructuring, and infrastructure scaling. They work through bodies like the Vice-Chancellors Committee to overhaul teacher education, adjust admission criteria with

KUCCPS, and upgrade practical facilities to support specialized pathways. It is assumed by the *Ministry of Education* that this is actually the case, oblivious of the financial constraints faced by the Kenyan public universities.

As the Commission for University Education, and by large the Kenya government grapple with these critical concerns, one thing certain: CBE is here with us, and its here to stay. The competences and values defining this education system are beyond reproach. If Kenya means well in her quest to attain the first world status, it must embrace the requisite competences in its education system that will trigger the leap. This has already been stated, the competences outlined, and the values made explicit. But in the middle of these competences, how does critical thinking stand out as a condition without which other values collapse? How can critical thinking systematically reconcile the CBE pedagogy towards the attainment of its intended goals?

6. Understanding Critical thinking and its Value to CBE

We have made the point that despite the architects of CBC pronouncing the dominant role critical thinking plays in the realization of the CBE system, it has continued to stand out as the defining competence. Being what it may, it remains evident that CBE competencies are anchored on the learners' ability to thinking critically and be able to address the ever emerging challenges in human society. Consequently, more efforts need to be made to ensure, not only the understanding of critical thinking, but also the best global practices on infusing it within subjects' domains. (Halpern, D. F, 1997).

Critical thinking serves as the foundational pillar of the Competency-Based Curriculum (CBC) by shifting the educational focus from rote memorization to active, practical understanding. When learners develop strong critical thinking skills, they cease to be passive consumers of information and instead become active problem-solvers who can analyze evidence, question assumptions, and evaluate diverse viewpoints. This cognitive development is vital for mastering core CBC competencies like communication and collaboration, as it requires students to reason deeply and listen to different perspectives. Furthermore, it fuels imagination and creativity by encouraging learners to look beyond traditional boundaries to invent fresh, innovative solutions to everyday challenges, while simultaneously driving the "learning to learn" competence by training students to monitor and direct their own academic growth.

Beyond academic skill, critical thinking acts as an anchor for the core human values that the CBE aims to instill in learners. By learning to analyze the consequences of their actions, learners develop a deep sense of personal and social responsibility, ensuring that their contributions to community projects are thoughtful and impactful. Evaluating issues from multiple cultural or social angles fosters empathy, open-mindedness, and respect, which are essential for building peaceful coexistence in a diverse society. Additionally, critical thinking nurtures integrity and citizenship; learners taught to value verifiable proof over emotional bias inherently appreciate truth, which inspires them to analyze local community needs objectively and take constructive, patriotic action to improve their country. (Namwambah, 2011)

Majority of the world communities would agree that events in the world are constantly and increasingly changing, and under unpredictable uncertainties: pressure, challenges, conflicting ideas, and opinions continue to emerge. Technological challenges and the amounting level of

information continue to thrill, mesmerize and spin our mental potency. Our ability to adeptly navigate these challenges determines how best we can live and manage the world.

Our ability to think critically, to effectively address and solve the ever-emerging problems; and to effectively understand key methods and skills for criticality, effective problem solving, and decisive decision-making is what will enable us to effectively address the right problems, identify risks and make better decisions. By learning to think critically we can use our intelligence to create a better world, prevent suffering and build a better society.

In order to address the ever-unfolding challenges, critical thinking stands out as the core engine of Competency-Based Education (CBE). It replaces passive memorization with active analysis, allowing learners to evaluate evidence, question assumptions, and solve real-world problems. Without critical thinking, the competency-based frameworks cannot function or build the requisite practical skills intended by CBE.

By embracing critical thinking, Kenya's educational paradigm shifts completely from rote learning to application, focusing on: i) *deep understanding*, where students move past memorizing facts to analyze how and why things work; ii) *active participation*, with learners engaging directly with ideas instead of just repeating teacher instructions construed for wisdom; and, iii) *challenging bias*, where students recognize personal assumptions and look at alternative viewpoints.

In relation to addressing and solving real-world problems, critical thinking is catalytic. It enhances the focal point of CBE, namely: i) *practical solutions*, where focus is on real-world challenges with students being encouraged to dissect complex issues into manageable parts; ii) *inquiry-based growth* - stimulating curiosity through active inquiry, and driving students to investigate and test hypotheses; and, iii) *adaptability* – building confidence in learners to courageously use structured reasoning to navigate new, unfamiliar environments and unexpected obstacles.

By stressing the need to prepare students for their future success through critical thinking, CBE stays attuned to the prevailing, and the needs for: i) *workforce demand* – cognizance that modern employers heavily value individuals who can reason logically and make sound judgments; ii) *informed decision making* – enabling learners to weigh consequences and benefits effectively in both academic and personal choices.; and, iii) *lifelong independence* - creating self-directed learners who continue to evaluate and improve their own thinking processes over time.

But what exactly is critical thinking, in what does it consist, and why emphasize it in the CBE pedagogy?

By critical thinking, we mean the ability to use cognitive skills and strategies effectively in order to increase the probability of a desirable outcome. It is the kind of thinking that is purposeful, reasoned, and goal-directed; the thinking that is involved in effective problem-solving, calculation of likelihoods, formulation of inferences, and decisive decision-making. As a way of thinking, critical thinking involves evaluating our thinking process: the reasoning that informs the conclusions we arrived at, and the kind of factors we consider in making our decisions; it is that kind of thinking directed at a desirable outcome.

Critical thinking can also be understood as the act of analyzing facts to understand a problem or topic thoroughly: the clear, rational process of actively analyzing, evaluating, and interpreting information instead of accepting it at face value.

The critical thinking process typically includes steps such as collecting information and data, asking thoughtful questions, and analyzing possible solutions. The kind of thinking mainly concerned with having faith in the supremacy of reason, honesty, integrity, fair-mindedness, courage, empathy, and open-mindedness. It is a way of strengthening and improving thinking in order to develop accurate and reliable knowledge.

In its broadest sense, critical thinking is the disciplined process of actively and skilfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action. In its exemplary form, critical thinking is based on universal intellectual values that transcend subject matter divisions: clarity, accuracy, precision, consistency, relevance, sound evidence, good reasons, depth, breadth, and fairness. It aims at reasoning through multi-faceted ways; analyzing information and facts presented as to attain the highest desirable good; evaluating facts as to authenticate and establish their truth value and reliability; problem-solving in order to satisfy the worth of reasoning, and; decision making as a means to attain solutions to the myriad problems confronting the contemporary world. (Ennis, R. H. 1987).

Critical thinking has two components: i) a set of skills to process and generate information and beliefs, and, ii) the habit, based on intellectual commitment, of using those skills to guide behaviour. It is contrasted with that kind of thinking that aims at: i) mere acquisition and retention of information alone, (because it involves a particular way in which information is sought and treated,); ii) mere possession of a set of skills, (because it involves the continual use of them,) and, iii) mere use of those skills ("as an exercise") without acceptance of their results.

The MCC General Education Initiative observes that Critical thinking includes the ability to respond to material by distinguishing between facts and opinions or personal feelings, judgments and inferences, inductive and deductive arguments, and the objective and subjective. It also includes the ability to generate questions, construct, and recognize the structure of arguments, and adequately support arguments; define, analyze, and devise solutions for problems and issues; sort, organize, classify, correlate, and analyze materials and data; integrate information and see relationships; evaluate information, materials, and data by drawing inferences, arriving at reasonable and informed conclusions, applying understanding and knowledge to new and different problems, developing rational and reasonable interpretations, suspending beliefs and remaining open to new information, methods, cultural systems, values and beliefs and by assimilating information.

In regard to CBE, critical thinking is purposeful, self-regulatory judgement that results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, 'criteriological', or contextual considerations upon which that judgement is based. It is an essential tool of inquiry to Competency Based Education - CBE. It is the liberating force to Kenya's current education system, and a powerful resource in the learners' personal and civic life.

While not synonymous with good thinking, critical thinking is a pervasive and self-rectifying human phenomenon. The ideal critical thinker is habitually inquisitive, well-informed, trustful of reason, open-minded, flexible, fair-minded in evaluation, honest in facing personal biases, prudent in making judgements, willing to reconsider, clear about issues, orderly in complex matters, diligent in seeking relevant information, reasonable in the selection of criteria, focused in inquiry, and persistent in seeking results which are as precise as the subject and the circumstances of inquiry permit. Educating good critical thinkers means working towards this ideal. It combines developing critical thinking skills with nurturing those dispositions which consistently yield useful insights and which are the basis of a rational, judicious, and democratic society. (Maiorana, V. P. 1992).

From the foregoing, it is clear, not only that critical thinking is the central core competence to CBE, but that it is the rational justification by which judgement of ultimate reality is arrived at. Critical thinking involves following evidence where it leads, considering all possibilities, relying on reason rather than emotion, being precise in thinking and judgement, considering a variety of possible viewpoints and explanations to issues, weighing the effects of motives and biases in thinking and decision making, being concerned more with finding the truth than with being right, not rejecting unpopular views out of hand without subjecting them to thorough thought, being aware of one's own prejudices and biases; and, not allowing one's own biases, prejudices, and native egocentrism to sway one's thought and judgement.

6.1. Characteristics of Critical Thinking

Walde (1995) identifies 8 (Eight) relevant characteristics of Critical thinking to CBE. They include: i) asking questions, ii) defining a problem, iii) examining evidence, iv) analyzing assumptions and biases, v) avoiding emotional reasoning, vi) avoiding oversimplification, vii) considering other interpretations, and viii) tolerating ambiguity. Dealing with ambiguity is also seen by Strohm & Baukus (1995) as an essential part of Critical thinking - *"Ambiguity and doubt serve a critical-thinking function and are a necessary and even a productive part of the process"*. It is vital for critical thinking because real-world problems are complex, messy, and quite often lack clear answers. It stops people from rushing to fast, weak conclusions, and keeps the mind open to new facts and different views. Tolerating ambiguity helps to: i) *Reduces bias* - prevents quick jumps to easy but misleading/ distorted answers; ii) *Encourages inquiry* - allows time to look for deep proof; iii) *Improves choices* - weighs risks before final steps; and, iv) *Accepts change* - helps update views when new facts appear. (Strohm & Baukus, 1995)

6.2. Critical Thinking Skills

Critical thinking skills are cognitive processes that underlie the performance of critical thinking tasks (Bailin, Coombs et al., 1999; Facione, 1998; Siegel, 1985). As the core pillar of Competency-Based Education (CBE), they move learners past simple memorization to analyze facts, judge evidence, and solve real-world problems. The skills turn passive listeners into active problem-solvers, and decisive decision-makers. The key skills to be cultivated among learners include observation, explanation/effective communication, inference, analysis, interpretation, evaluation, reasoning, and, problem-solving. (Facione, 1998). What does each of these skills entail?

i) Observation

Observational skills are the starting point for critical thinking. People who are observant can quickly sense and identify a new problem. Those skilled in observation are also capable of understanding why something might be a problem. They may even be able to predict when a problem might occur before it happens based on their experiences.

ii) Analysis

Once a problem has been identified, analytical skills become essential. The ability to analyse and effectively evaluate a situation involves knowing what facts, data or information about the problem is important. This often includes gathering unbiased information, asking relevant questions about the data to ensure it's accurate and assessing the findings objectively.

iii) Inference

Inference is a skill that involves drawing conclusions about the information you collect and may require you to possess technical or problem-specific knowledge or experience. When you make an inference it means you are developing answers based on limited information. For example, a car mechanic may need to infer what is causing a car's engine to stall at seemingly random times based on the information available to them.

You can improve your inference skills by placing focus on making educated guesses rather than quickly drawing conclusions. This requires slowing down to carefully look for and consider as many clues as possible - such as images, data or reports that might help you evaluate a situation.

iv) Communication

Communication skills are important when it comes to explaining and discussing issues and their possible solutions with teachers, students, parents, colleagues and with other stakeholders. CBE aims at improving learners' communication skills within the context of critical thinking by engaging them in difficult discussions, for example, in situations when learners may disagree about the topic. Maintaining good communication habits, such as active listening and respect, encouraging them to understanding other points of view, and allowing them to be able to explain their ideas in a calm, rational manner builds confidence in them. Doing so can help them to evaluate solutions more effectively with their fellow learners.

v) Problem-solving

The ultimate aim of identifying and analyzing a problem and then choosing a solution, is to execute that solution. Problem-solving often requires critical thinking to implement the best solution and understand whether or not the solution is working as it relates to the goal.

CBE aims at improving learners' problem-solving skills by setting goals to acquire more practical hands-on knowledge within their subjects' domains. Eventually, these skills in problem-solving will translate into actionable traits at work, typically making their task handling easier when they understand their work jurisdiction-specific information. It will also

be helpful in their observations of how others around them solve problems, be able to take note of their techniques and ask questions about their process.

6.3. Critical Thinking Traits

We have explained how important critical thinking skills are for today's learners (and for *everyone*) to build on. Every educator needs to know how crucial it is to cultivate these skills in classrooms and indeed throughout learners' whole lives. But what does the ideal critical thinker look like? What are the most crucial defining traits of effective critical thinkers?

Effective critical thinkers' function by way of different thought processes in different circumstances. After all, figuring out how to make it to work on time when your car breaks down in rush hour traffic requires critical thinking application just as much as negotiating world peace does. Both scenarios facilitate such skills in far different settings, and with different stakes and outcomes, but they call upon these skills nonetheless (Namwambah, 2020).

The question is about what universal traits the effective critical thinkers in each circumstance, and all those in between, would share. That's the mystery we intend to solve here by offering suggestions of what the most important defining traits of a critical thinker would be, namely: curiosity, compassion, awareness, decisiveness, honesty, willingness, creativity, criticality, sensitivity to context, innovativeness, tolerance, perseverance, and, faith in reason. We explain each of these traits.

- *Curiosity*: effective critical thinkers are inherently curious about a wide range of topics and generally have broad interests. They tend to have a healthy inquisitiveness about the world and about people. An understanding of and appreciation for the diversity of cultures, beliefs, and views that encompass humanity are one of the hallmarks of a great critical thinker. This is also part of what makes them lifelong learners.
- *Compassion*: as we seek to gift our readers and learners with these indispensable skills, we must not forget that they embrace the emotional and instinctual as much as the intellectual. Effective critical thinkers' act as much with their hearts as they do with their minds. The world is full of enough judgment and segregation, much of it from a lack of a clear understanding of one another's secret history of perseverance through often unimaginable suffering. Effective critical thinkers are inherently curious about a wide range of topics and generally have broad interests. Each one of us has a story of our own that makes us who we are, as well as personal trials and challenges that have shaped us. Critical thinkers recognize this and compassionately celebrate the uniqueness in everyone, and are willing to help us see the best in ourselves and others.
- *Awareness*: opportunities to apply critical thinking skills are all around us every moment. Effective critical thinkers remain tuned into this and are always alert for chances to apply their best thinking habits to any situation. A desire to think critically about even the simplest of issues and tasks indicates a desire for constructive outcomes. Effective critical thinkers don't take anything at face value, either. They never stop asking questions and enjoy exploring all sides of an issue and the deeper facts hiding within all modes of data. As such, those who think critically also tend to be instinctual problem solvers. This ranks as probably the most important skill we can help our learners build upon.

- *Decisiveness*: many situations that call for critical thinking also call for quick and decisive action. When we think critically, we weigh our options and imagine the outcomes in the moment with speed and clarity and are able to put aside fear when it comes to making decisions. In essence, critical thinkers like to move things forward rather than moving backward or procrastinating, because they thrive on progression. In addition to this, often choices have to be made even when we don't have all the information; we need to make them with confidence. When facing any kind of a challenge, often someone has to take the lead and make the hard decisions others shy away from. Effective critical thinkers realize that, more often than not, it's necessary to take the initiative and make a decision even if it ends up being the wrong one. To them, that's preferable to not making any decision at all.
- *Honesty*: Honesty is important in any sense, but it is especially important to critical thinking. Moral integrity, ethical consideration and action, and global citizenship practices are all hallmarks of effective critical thinkers. It's not a surprise that honesty resides at the core of all things. We see in critical thinkers a strong desire for harmony and fulfilment in the world, and part of attaining this by learners involves pursuing honesty in all their educational endeavours, and future careers. Many situations that call for critical thinking also call for quick and decisive action. The practice of honesty in critical thinking also extends to how one looks within oneself to embrace what resides there. It takes into account the processes behind managing our emotions, controlling our impulses, and recognizing any attempts at self-deception. Critical thinkers are as equally aware and accepting of themselves as they are of others.
- *Willingness*: willingness and flexibility encompass a number of key considerations for the critical thinker. They include but aren't limited to the ability to: i) learn from their own personal mistakes and shortcomings; ii) challenge the status-quo when the need arises; iii) open-mindedly embrace other opinions and views that challenge their own; iv) reconsider and revise their opinions in the wake of new evidence; v) listen actively rather than simply wait for their turn to talk; and, vi) constantly improve, learn, and excel.
- *Creativity*: effective critical thinkers are also largely creative thinkers. Creativity has unquestionably defined itself as a requisite skill for having in the collaborative modern workforce. Critical thinking in education, business, marketing, and professional alliances relies heavily on one's ability to be creative. When teachers get creative in their pedagogical methods, the learners' curiosity is reactivated and the thread of comprehension and application is kindled.

In addition to the above, there are salient features of critical thinking, which includes objectivity, rationality, creativity, open-mindedness, reflectiveness, modesty, observation, and, the desire to learn more. All these are foundational components that aim at enhancing the effectiveness of the CBE system.

6.4. Value and Importance of Critical thinking

The overall value and importance of critical thinking to CBE cannot be over-emphasized. Critical thinking and problem solving inculcate habits of thought - the ability to think without the box and use reason as the engine to existence; it encourages breadth of vision - the ability to see things from different points of view; it gives us a sense of self-perspective in our activities, and our lives - the ability to examine alternatives and choose those relevant to ensure

we live an examined and worthy life; it breaks down abstract thought and gives it immense practical value - the ability to translate ideas (theory) into practice through action; its interest and value lie in its ability in helping us to understand ourselves and our world better and more deeply than we otherwise would, and in permanently altering our approach to our lives and our relations to others through encouraging a lifelong habit of reflection on them.

Critical thinking and problem solving immensely enrich one's life, and can open to one view that would otherwise be closed or overlooked; it greatly enhances one's analytical, critical, evaluative, and interpretive abilities; enhances one's ability to express oneself clearly and to formulate and respond to arguments in speech and writing effectively; it provides one with general problem-solving skills, skills in analyzing concepts, definitions, arguments, and problems; while enabling one to organize ideas and issues and to extract what is central to an issue from a mass of information. (Richard P. 1997),

Critical thinking enhances one's ability to question deeply one's own framework of thought; it equips an individual with the ability to reconstruct sympathetically and imaginatively the strongest versions of points of view and frameworks of thought opposed to one's own; it inculcates the ability to reason dialectically (multi-logically) in such a way as to determine when one's own point of view is at its weakest and when an opposing point of view is at its strongest; it helps both to make fine distinctions and to find what common ground between opposing positions is.

Critical thinking encourages one to synthesize or bring together a range of different views into one more comprehensive and coherent position; it improves one's communication skills, through improving one's ability to present ideas in well-constructed, systematic arguments, to express what is unique about one's views, and to explain difficult material. And by presenting well-thought-out arguments, clear formulations, and apt examples, it turn lends one's arguments persuasive power. Further, the give and take of critical thinking based discussions improves one's ability to think on one's feet, and to indicate why one's own views are to be preferred to others. It also aids one in recognizing when and in what respect one's own views may be incorrect, and what must be revised or discarded and what can be retained.

Critical thinking lays emphasis on clarity and rigor of argument, the apt use of example and illustration, and sensitivity to the strengths and weaknesses both of views one is examining and of one's own view thus making ideas that determine good reasoning, and living more explicit and relevant; it plays an important role in social change - institutions in any society (courts, governments, schools, businesses etc.) - are products of a certain way of thinking; while helping in uncovering biases and prejudices, it is a path to freedom from half-truths and deceptions as it opens up one's mind to seeing things independent of emotions, native biases, and from different perspectives.

The willingness to change one point of view as we continue to examine and re-examine ideas that may seem obvious is a major component of critical thinking and problem-solving. Such thinking takes time and the willingness to say three subversive words: "*I don't know.*" means the desire to learn, rather than to perpetually dwell ignorance, and perpetual dogmatic slumber. All the above, are the critical targets of CBE towards the realization of its competences.

6.5. The Synergy between Critical Thinking and Competency-Based Education

As earlier stated, Competency-Based Education (CBE) represents a paradigm shift in pedagogy, transitioning academic focus from mere credit hours to the demonstrable mastery of specific skills and knowledge. Unlike traditional educational models that often reward passive consumption and rote memorization, CBE demands active engagement, practical application, and self-directed progression. To navigate this rigorous landscape successfully, learners must possess cognitive frameworks that extend beyond conventional thought. The foundational traits of critical thinkers such as logical reasoning, systematic reflection, intellectual humility, and an openness to alternative perspectives serve as the primary drivers that enhance and actualize the goals of this education system.

At the core of CBE is the requirement that students independently solve complex, authentic problems to prove their proficiency. Critical thinkers naturally excel in this environment due to their reliance on evidence, sequential logic, and truth-seeking diligence. Rather than relying on emotional or superficial analyses, these individuals approach assessments with a structured methodology, allowing them to evaluate and solve problems methodically as they arise. Their ability to distinguish valid arguments from fallacious reasoning, recognize errors in persuasion, and asking penetrating, thought-provoking questions ensures a deep, comprehensive interaction with learning materials. Furthermore, because master-level competencies are rarely isolated, the critical thinker's capacity to see connections between disparate topics and synthesize knowledge from multiple disciplines allows them to build the holistic, cross-functional understanding vital for real-world application. (Elder, L. et al.1994),

Beyond purely cognitive skills, the affective and behavioral traits of critical thinkers align precisely with the self-paced, iterative nature of competency-based frameworks. CBE requires continuous self-assessment and a willingness to adapt based on objective performance data. Critical thinkers possess the intellectual courage and humility necessary for this process; they are inherently willing to take critical stances, acknowledge mistakes, correct errors, and reassess their viewpoints when discordant evidence is introduced. This habit of continuous reflection prevents stagnation and fosters continuous academic growth. Additionally, because mastering complex competencies often involves navigating unfamiliar or unstructured scenarios, the critical thinker's patience, perseverance, and high tolerance for ambiguity protect them from frustration. By maintaining an open mind to new ideas that challenge prior assumptions, the learners demonstrate the adaptability and endurance required to achieve definitive mastery.

Further, critical thinking traits do not merely complement Competency-Based Education; they are the essential mechanisms through which competencies are achieved and demonstrated. By marrying systematic, cross-disciplinary logic with a resilient and reflective mindset, critical thinkers transform the educational experience from a passive ritual into a dynamic pursuit of verifiable expertise. As educational institutions continue to embrace mastery-based models, fostering these specific critical thinking traits will remain paramount to cultivating independent, capable lifelong learners.

6.6. Critical Thinking and Education in the Critical Faculty

The education develops individual knowledge, skills, values, and attitudes. It enables personal

growth, drives economic progress, reduces poverty, and promotes social cohesion and peace worldwide as a fundamental human right. In so doing, education liberate individuals from ignorance and dogmatic tendencies to rationality and self-understanding; it transform individuals from a state of individualism and mass-thinking to autonomy and individuality; it integrate individuals with the self, nature, and society; is a catalyst to progress and positive change for both the individual and society; it spur development and reengineers human society and individual growth; is a means to self-actualization, self-discovery, and reinvention; and, is a lever for human emancipation from the fetters of self-miss-definition, self-misconception, and self-deception.

Education in the critical faculty means training the mind to question, analyze, and evaluate beliefs, authority, and social structures instead of passively accepting facts at face value. This kind of education builds active thinkers who can reason logically, recognize bias, and make independent, ethical judgments. It helps to build, cement and solidify learners' skills for effective communication and collaboration, critical thinking and problem-solving, creativity and imagination, citizenship, digital literacy, learning to learn, and, self-efficacy, all of which are grounded in sharpening the critical faculty through infusion of critical thinking and problem solving competence across all learning disciplines' domains. (Richard P. 1997)

In addition, education in the critical faculty provides the ability to think with grounded reasons, pursue realistic dreams and aspirations in life and live a defined, deliberate and respectable life. It gives a definite path to follow, choices from which to decide, and leads to self-discipline by equipping the learner with requisite skills for freedom of expression, visibility, participation and respect. It frees the mind from prejudices, biases, perpetual dogmatic slumber, and egocentric tendencies; while motivating thinking logically, sequentially, and precisely towards the attainment of desirable outcomes. It is essential for the overall development of the human mind and cognitive propensity. The benefits of such education are numerous, and below are just but a few.

- a) *Overcoming social prejudices*: This is probably the most important benefit of education in the critical faculty. Social evils and beliefs can really hold back the growth and development of society, and a country. To overcome this and understand and explain things with logic and reasoning, education in the critical faculty is essential. One enlightened mind can lit up a thousand more. Education, used in the proper way helps to reduce crime, restore law and order, and build a cohesive, peaceful and united society.
- b) *Nurture talent and pursue dreams*: Every human has dreams and aspirations. Education is a link and medium to pursue and fulfill them. It increases the knowledge of a person in different fields of study. It helps to determine a path to follow and visibly express one's talent to the world.
- c) *Enhance creativity and imagination*: Education opens up new ways and ideas to reflect upon. It cultivates a young mind to think without the box and explore different things in life. Education also helps to know about things and stay healthy, fit and follow a productive lifestyle.
- d) *Contribute to a bigger growth*: Education is a way of academic and intellectual excellence. It paves the path for the economic growth of a nation. Research and development in sectors like technology, medicine, sports, and others, breakthrough innovation, and progressive mindset - all of which are fruits of education. It takes a

nation and its people forward. Educated people contribute towards advancement in every sector of development and human advancement.

- e) *Promotes citizenship and national pride*: the cultivation of rational, judicious, and analytical thinking empowers learners to question assumptions, evaluate evidence, and make reasoned judgments. In a Competency-Based Education (CBE) framework, this intellectual training directly builds the core competency of citizenship by transforming passive societal occupants into active, ethically responsible, and critically literate participants
- f) *Knowledge, wisdom, and exposure*: Education opens up every channel of knowledge and wisdom. It exposes us to a new world of information, invent new things, and guides us on how we can make our surroundings a better place to live and put our lives to greater, and better use.
- g) *Enhance communication and collaboration*: Education in the critical faculty builds skills to analyze information, spot weak arguments, and think clearly. These skills improve communication and collaboration by helping people share ideas accurately, listen with an open mind, and solve team problems without personal bias. It is a catalyst to clear messages, better listening and stronger evidence; resulting in the ability to fairly address conflicts, have a structured mindset, and becoming a smart problem-solver.
- h) *Strengthens self-efficacy*: It teaches learners to analyze evidence, question assumptions, and solve complex problems independently. When learners master these analytical tools, they gain confidence in their own judgment and agency. This mastery directly strengthens their belief in their capacity to succeed.

In the words of Nelson Mandela, “*Education is the most powerful weapon, which one can use to change the world.*” When the world is busy getting equipped with deadly weapons and machinery, terrorism has been institutionalized, respect for human rights and dignity is abused, it is very important to understand that education is the real and only asset that can develop an individual, reclaim the sanctity of decency, and protect vulnerable nation. The need for nations and world leaders to join hands and make education, not only a fundamental right for all but also the guiding light, which can take humankind ahead through all phases of global darkness has never been urgent and wanting as it is today.

In the same breath, CBE focuses on nurturing the mind, call it “*education in the critical faculty*”. It aims at empowering individuals by fostering analytical skills to question assumptions, resist dogmatic tendencies, and cultivate self-actualization - serving as a catalyst for personal growth and societal progress. The pedagogical approach focuses on transforming passive learners into active, ethical thinkers, embedding core competencies like critical thinking, creativity and innovation, communication, and self-efficacy across disciplines to promote informed citizenship and social cohesion.

The integration of critical thinking within Competency-Based Education (CBE) pedagogy therefore serves as a foundational pillar for developing well-rounded learners capable of navigating the complex, controversial societal issues attested to earlier in this paper. Rather than fostering passive compliance or the mere absorption of information, this pedagogical approach focuses on training judicial habits of thought and enhancing raw intelligence over simple rote knowledge. By cultivating a synthesis of intellectual and moral virtues, education in the critical faculty actively mitigates cognitive vices such as dogmatism, unexamined prejudice, and blind adherence to dominant societal creeds or authoritative dogmas. Ultimately,

this framework ensures that learners transition from passive consumers of information into autonomous agents capable of formulating independent, reasonable judgments.

At the operational level, education in the critical faculty demands the cultivation of three primary cognitive skills, which must rigorously meet the evaluative standards of clarity, accuracy, precision, relevance, depth, breadth, and logic. First, learners must develop the capacity for independent opinion-making them to resist misleading rhetoric and verify the truth claims of their own beliefs. Second, they must master impartial problem-solving, which requires recognizing personal biases, viewing personal convictions with detached objectivity, and weighing evidence on its structural merits. Third, students must systematically identify and question foundational assumptions through constructive doubt. This critical framework stresses that reflection cannot be reduced to a mechanical formula or restricted to approved, conventional topics; instead, it is a constructive enterprise that evaluates apparent knowledge to retain only what survives rigorous scrutiny. (KICD, 2017).

Possessing critical skills is insufficient without the corresponding behavioral dispositions that guarantee their active exercise. Translated into actual behavior, these dispositions manifest as mental habits and a deliberate outlook on life, characterized by impartial inquiry, evidence-based assent, and an unwavering commitment to truthfulness over confirmation bias. Rather than being drilled as automatic, unthinking responses, these habits reflect a conscious intellectual readiness and willingness to act. This includes an open-minded readiness to admit new evidence against prior convictions, discarding inadequate hypotheses, and adapting oneself to objective realities rather than succumbing to prevailing social pressures. Consequently, these habits shield learners from becoming prisoners of prejudice trapped within the cyclical thinking of their own era.

Beyond skills and dispositions, a critical person is defined by specific epistemological attitudes that shape their stance towards knowledge and opinion. This attitude is marked by an acute awareness of human fallibility and the uncertainty of dogmatic assumptions, which fosters intellectual humility. It demands an inward readiness to give weight to opposing viewpoints while maintaining a tentative hold on beliefs, scaling conviction strictly to the strength of available evidence. This rational temper avoids both lazy skepticism and mindlessness, ensuring that subjective desires do not distort objective reality. Ultimately, this critical outlook blends epistemological and ethical perspectives, emphasizing that beliefs must be held non-dogmatically, with a profound commitment to freedom of opinion, truthfulness, and tolerance.

6.7. Relevance of Critical thinking to CBE in Kenya

Kenya's developmental trajectory is intricately shaped by a triad of deeply intertwined social, economic, and political challenges. Socially, the nation grapples with persistent systemic inequalities, ethnocentric divisions that frequently threaten national cohesion, and inadequate access to high-quality healthcare and education. Economically, these vulnerabilities are compounded by a severe cost-of-living crisis, unsustainable public debt, and high rates of youth unemployment within a heavily informal economy. These issues are further exacerbated by political factors, including entrenched corruption, weak institutional governance, and recurring cycles of electoral instability. For critical thinking, analyzing Kenya's predicament requires examining how these three dimensions intersect - specifically, how political governance directly drives economic policy and either alleviates or deepens social disparities.

Integrating Critical Thinking and Problem Solving into subject domains aims at equipping a new generation with requisite abilities to dissect and resolve Kenya's unique social, economic, and political hurdles. (Halpern, D. F. 1997).

a) Solving Social Problems

Kenya faces significant social challenges, including negative tribalism, corruption, and healthcare inequalities. Critical thinking through CBE directly addresses these by:

- i. *Eradicating Tribalism*: CBE promotes "Citizenship" as a core competency. Critical thinking compels learners to question inherited prejudices, deconstruct stereotypes, and appreciate diversity, thereby fostering national unity and social cohesion.
- ii. *Combating Corruption*: Instead of accepting the status quo, critical thinkers evaluate the moral and social consequences of their actions. Integrated value education in CBE instills social justice and personal accountability from young age to university level education.
- iii. *Deconstructing Misinformation*: Learners are trained in digital literacy and evaluation. This helps them filter out fake news, online propaganda, and radicalization tracks that threaten social stability.

b) Solving Economic Problems

High youth unemployment, over-reliance on traditional agriculture, and a lack of industrial innovation stall economic growth. Critical thinking changes the economic landscape through:

- i. *Fostering Entrepreneurship*: CBE shifts focus to what learners can *do*, rather than what they *know*. Critical thinking allows youth to identify local market gaps, calculate financial risks, and create self-employment opportunities rather than waiting for formal jobs.
- ii. *Driving Applied Innovation*: Through practical, real-world school projects, students are encouraged to design creative solutions. They apply critical thinking to resolve major national resource hurdles, like developing smart, sustainable farming methods or eco-friendly waste management solutions.
- iii. *Aligning Skills with Global Markets*: A workforce trained to think critically can easily adapt to technological advancements, ensuring Kenya remains competitive in the global digital economy.

c) Solving Political Problems

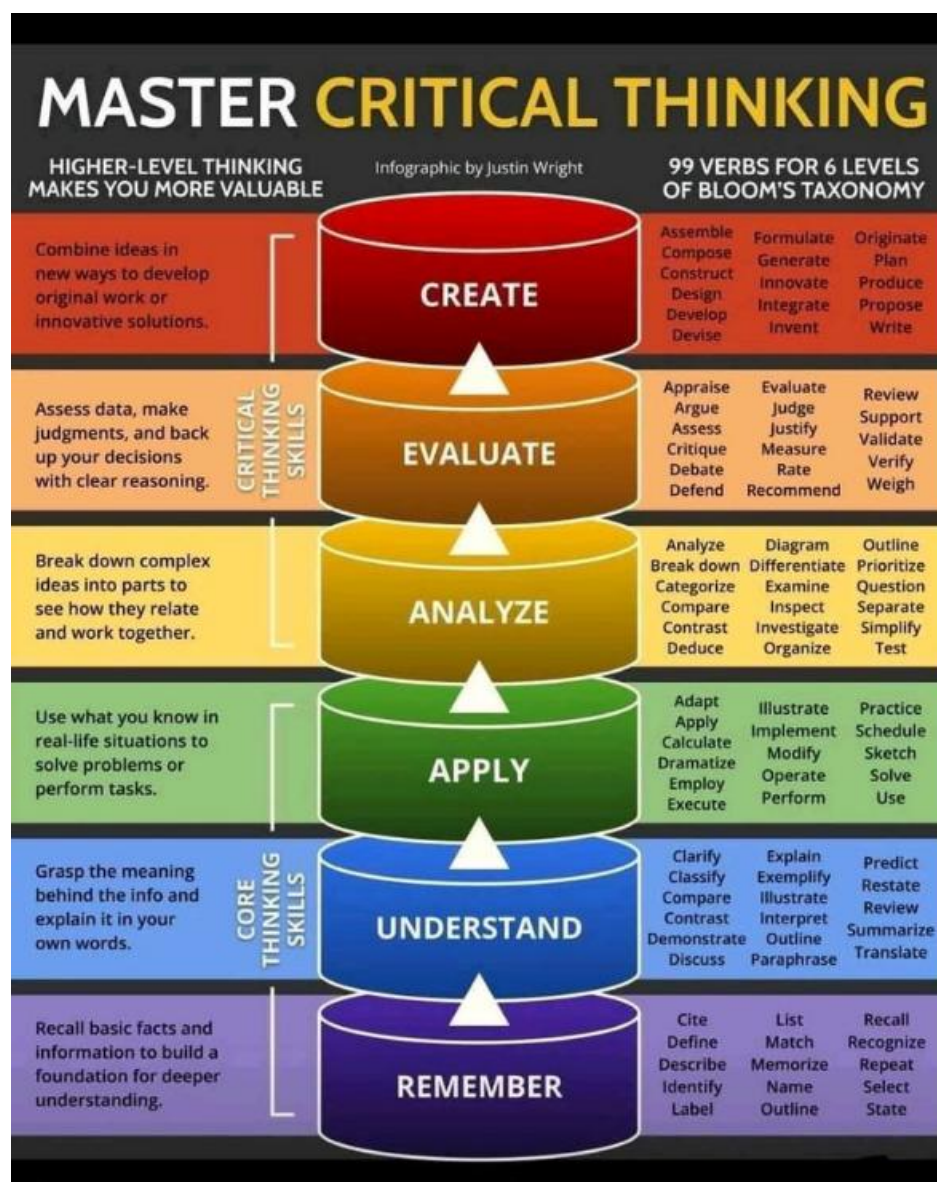
Political issues in Kenya often stem from voter manipulation, lack of accountability, and weak civic engagement. Critical thinking serves as a democratic shield by:

- i. *Promoting Informed Democratic Choices*: Critical thinking enables citizens to objectively evaluate political deceit, manifestos and policies instead of being swayed by populist rhetoric, handouts, or ethnic alignments.
- ii. *Demanding Accountability*: CBE empowers future civil society members to monitor governance. An analytical electorate can track public expenditure, critique legislative actions, and legally hold leaders accountable for their campaign promises.
- iii. *Constructive Conflict Resolution*: Political disputes in Kenya historically overflow into violence. CBE emphasizes communication and negotiation. Critical thinking

helps citizens engage in peaceful dialogue, balance varying political opinions, and prioritize the country's stability over political polarization.

6.8. The CBE Pedagogy for Critical Thinking

Competency-based Education (CBE) pedagogy for critical thinking represents a paradigm shift in contemporary education, transitioning the traditional learning environment away from passive rote memorization toward an active, objective evaluation of information. This methodological approach empowers learners to look beyond surface-level text, systematically analyzing arguments, exposing underlying cognitive biases, and formulating independent, reasoned judgments. Within this framework, the traditional instructional dynamic is entirely reconfigured: the educator acts as an instructional guide who establishes psychological safety and models intellectual curiosity, while the student shifts to an inward reflection mode, continuously auditing and adapting their own thought processes as novel empirical evidence emerges.



Justin Wright 2023

Central to this pedagogical evolution is the *Socratic Questioning Method*, a highly disciplined tool of active inquiry rooted in classical philosophy that drives students to independently discover and justify conceptual insights. Rather than delivering passive lectures, instructors utilize six distinct taxonomies of open-ended questions targeting clarification, probing of baseline assumptions, verification of supporting evidence, exploration of alternative viewpoints, evaluation of potential consequences, and meta-reflective questioning of the prompt itself. This structured dialogue systematically cultivates a critical spirit, forcing learners to defend their arguments verbally while dynamically deconstructing weak or fallacious logic during peer-to-peer discourse.

Complementing dialogic inquiry, *Cognitive Activation* serves as an instructional strategy that intentionally maximizes higher-order cognitive processing by presenting multi-step tasks with no singular or obvious solutions. By deliberately introducing contradictory data or opposing perspectives, educators generate cognitive conflict, which disrupts routine heuristics and forces learners to re-evaluate deeply held beliefs. This method requires students to explain and critique diverse solution pathways, making their internal reasoning visible and shifting the pedagogical focus away from finding the correct answer toward mastering the underlying logical process.

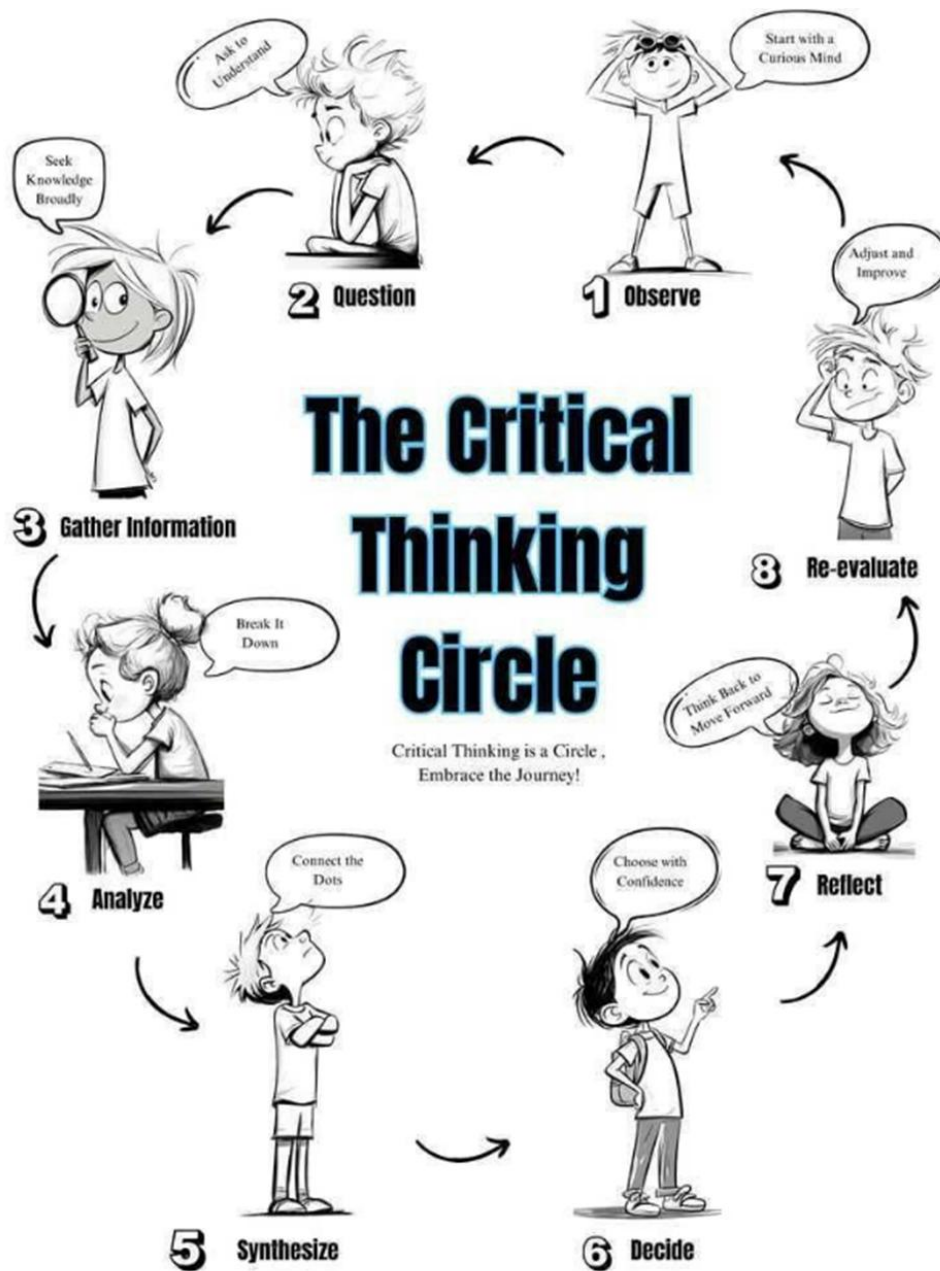
To operationalize these critical frameworks, curriculum designers rely heavily on *Active, Experiential, and Problem-Based Learning (PBL)* configurations to bridge the gap between abstract theory and real-world execution. Through interactive typologies such as structured controversies, collaborative team projects, professional internships, and contextual case study simulations, learners step directly into the roles of operational decision-makers. These experiential environments compel students to synthesize ambiguous data under real-world constraints, which significantly elevates knowledge retention, builds decision-making confidence, and refines workplace readiness across diverse disciplines.

The scalable delivery of critical thinking pedagogy is highly optimized through Collaborative, Blended, Microlearning, and Mentoring modalities. Collaborative peer-teaching and structured study groups enhance cognitive flexibility by continuously exposing students to heterogeneous perspectives, while blended architectures combine digital modules with high-impact, face-to-face feedback sessions. Furthermore, breaking down complex theories into bite-sized microlearning segments, facilitated by modern automated authoring environments like Coursebox AI improves memory recall for busy professionals, while one-on-one coaching and leadership mentoring provide the personalized, actionable feedback necessary for long-term career growth.

7. Conclusion

"Teach for Critical Thinking" transforms traditional classroom dynamics by embedding active reasoning, problem-based tasks, and open-ended inquiry directly into the standard curriculum. Rather than treating critical thinking as an isolated, theoretical subject, this instructional approach serves as the operational engine that compels students to actively process, challenge, and apply information within their specific disciplines, shifting the focus from rote memorization to an analytical disposition. This distinction is crucial for university faculty navigating the transition toward Competency-Based Education (CBE), as it moves away from relying on standalone logic lectures that fail to translate into actual cognitive potency. By

integrating critical thinking into subject domains and prioritizing performance-based mastery, institutions can eliminate redundant coursework and better equip students with justified, field-specific skills.



Structured from "How We Think" by John Dewey

Declaration of conflict of interest

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References

- Amutabi, M.N. (2003). *The 8-4-4 system of education*. International Journal of Educational Development. 23.
- Browne, M. N & Keeley, S. M. (2014). *Asking the Right Questions. A Guide to Critical thinking*. Harlow: Pearson Education Ltd.
- Burger, B. E. & Starbird, M. (2012). *The 5 Elements of Effective Thinking*. New Jersey: Princeton University Press.
- Crusius, T. W & Channell, C. E. (1999). *The Aims of Argument*. London: Mayfield Publishing Company.
- Elder, L. and Paul, R. (1994), "Critical thinking: Why we must transform our teaching." Journal of Developmental Education 18:1, Fall 1994.
- Elgin, C. Z. 1996. *Considered Judgement*. New Jersey: Princeton University Press
- Ennis, R. H. (1987). *A taxonomy of Critical thinking dispositions and abilities*. In Joan B. Baron and Robert J. Sternberg (Eds.).
- Fisher, A & Tallant, J. (2016) *How to Get Philosophy Students talking. An Instructor's Toolkit*. London: Routledge Group.
- Halpern, D. F, (1997). *Critical thinking Across the Curriculum*. New Jersey: Lawrence Erlbaum.
- Jeptepkeny, A. & Keter, J. (2025). *The Influence of Inclusive Education Planning on the Implementation of Competency-Based Education (CBE) in Senior Schools in Kenya*. In Journal of Research, Innovation and Implications in Education.
- Kahnemann, D. (2012). *Thinking, Fast and Slow*. London: Penguin Books Ltd.
- Kahneman, D., Slovic, P., and Tversky, A. (1982). *Judgement under Uncertainty: Heuristics and Biases*. Cambridge: Cambridge University Press.
- KICD (2017). *Competency-based Curriculum*.
- Maiorana, V. P. (1992). *Critical thinking Across the Curriculum: Building the Analytical Classroom*.
- Ministry of Education (K) (2018). *Competency Based Education and Training Policy Framework*.
- Namwambah, D. T. (2026). *Foundations of Critical Thinking and Problem Solving*. Riga, Latvia (E.U): Scholars' Press.

- Namwambah, D. T. (2020). *Critical Thinking and Problem Solving*. Riga, Latvia (E.U): Scholars' Press.
- Namwambah, T.D. (2011). (Revised Ed.). *Essentials to Critical and Creative Thinking*. Njigua Books -Nairobi.
- Namwambah, T. D. (2016). *Introduction to Critical and Creative thinking*. A Self-Teaching Module.
- Namwambah, T. (2014). *Elements and Pedagogy of Critical Thinking*. Nairobi: Dale Publishers
- Namwambah, T. (2010). *Think Critically and Creatively "A Thinkers' Companion"*. Dale - Nairobi.
- Richard P. (1997), *Educating Reason*. California Univ. Press. Weston, A. (2018). *A Rulebook for Arguments*. Cambridge: Hackett Publishing Co. Inc.
- Wilson, J. (2017). *Critical Thinking: A Beginner's Guide to Critical Thinking, Better Decision Making, and Problem Solving*. New York: C.S.I.P Publishers.