



A Framework for National Foundational Digital Literacy Skills Training of Citizens in Kenya

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ABSTRACT

This article presents a structured framework developed for the Information and Communication Technology Authority of Kenya's training of foundational digital literacy skills for citizens. The study aims to evaluate the effectiveness of the training framework in narrowing the digital divide and empowering communities. Using a mixed-methods approach, including baseline and endline surveys and statistical analyses (paired t-tests and effect sizes), the article assesses the impact of digital training on more than 600,000 citizens in Mandera and Busia counties. Results demonstrate significant improvements in digital skills, with large effect sizes (Cohen's d ranging from 1.14 to 1.25) and consistently high post-training scores across modules. The findings underscore the framework's effectiveness and highlight gaps in reaching persons with disabilities. It concludes that a standardized, inclusive, and scalable framework is essential for national digital empowerment. It recommends policy support, public-private partnerships, and targeted interventions to enhance the framework's reach and sustainability.

KEYWORDS

Digital Skills, Literacy, Training, Citizens, Framework, ICTA, Kenya, Community Digital Champions, Model, Socio-Economic Development, Information and Communication Technology, Empowerment

INTRODUCTION

The digital divide in Kenya remains a critical barrier to inclusive socio-economic development, with disparities in access to digital technologies and skills persisting, particularly between urban and rural populations and across socio-economic groups. (Okello, 2024). Historically, Kenya has made significant strides in expanding its information and communication technology (ICT) infrastructure, notably through initiatives such as the National Optic Fibre Backbone and mobile network expansion.

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However, a lack of scalable, sustainable, cost-effective, and impactful frameworks for foundational digital literacy skills remains. This phenomenon has hindered the ability of many citizens to participate fully in the digital economy (MICDE, 2022). Despite efforts by the Information and Communication Technology Authority (ICTA) to promote digital literacy, the digital divide persists, making communities, such as those in arid and semi-arid lands (ASALs) like Mandera, non-ASALs, and Food-insecure regions like Busia are vulnerable (Naikumi, 2024).

A digital skills literacy framework is a structured set of guidelines, competencies, and implementation strategies designed to equip individuals with the knowledge, skills, and attitudes necessary to effectively use digital technologies for personal, professional, and civic purposes (United Nations Educational Scientific and Cultural Organization, 2018). Such frameworks outline proficiency levels, curricula, training methodologies, and stakeholder roles to ensure accessibility and scalability. In Kenya, the digital literacy skills framework is organized into five levels: foundational, basic, intermediate, advanced, and professional. However, the ICTA Foundational Digital Skills Framework, which is the focus of this paper, emphasizes six competencies: F101: Introduction to ICT and Digital Devices, F102: Internet Navigation and Communication Tools, F103: Digital Citizenship and Cybersecurity, F104: Accessing Government Services Online, F105: Entrepreneurship and Digital Marketing, and F106: Using Digital Tools for Everyday Life (United Nations Educational Scientific and Cultural Organization, 2018; Information and Communication Technology Authority, 2024). These modules aim to address the range of foundational digital skills competencies among citizens. These distinctions are critical for designing targeted interventions that address specific skill gaps across diverse populations.

This study is grounded in three key theoretical perspectives. The first is the critical theory of technology (CTT), which deems technology as socially shaped, reflecting power structures and potentially reinforcing inequalities. It advocates for participatory design to empower marginalized communities (Grimes & Feenberg, 2013). Relevant for inclusive training and empowerment in Mandera and Busia, the study will develop practical evaluation constructs. The second key theoretical perspective, constructivist learning theory (CLT), posits active knowledge construction through experience, emphasizing learner-centered, collaborative learning (Manyasa, 2022). Using relevant modules such as F105 and community hubs, the study developed tailored constructs and scalable models. The third key theoretical perspective, task-technology fit (TTF), argues that technology adoption depends on matching task needs with technology capabilities. (Goodhue & Thompson, 1995). Relevant for aligning ICTA's curriculum with local infrastructure and needs, the study developed constructs for diverse learners and incorporated systemic factors.

The absence of a comprehensive, scalable, sustainable, cost-effective, and impactful framework for delivering foundational digital literacy skills in Kenya poses a significant challenge to bridging the digital divide. As a result, many individuals, particularly in rural and low-income areas, remain digitally illiterate and unable to participate in the digital economy. Statistics highlight the scale of the problem. According to a 2024 report by the Kenya National Bureau of Statistics, approximately 60% of adults in the country have low digital literacy; more than 40% of rural households in Kenya still lack internet access. Research indicates that marginalized groups, specifically persons with disabilities (PWDs) and individuals in ASAL regions, often experience pronounced barriers to accessing digital tools and training. These barriers include inadequate infrastructure, a lack of specialized training programs tailored to their needs, and socio-cultural stigmas that limit participation in digital environments. The KNBS (2024) highlighted that these disparities significantly contribute to the broader socio-economic inequalities, reiterating that access to technology is not merely a matter of availability but is deeply entwined with accessibility. Moreover, Raihan et al., (2025) posit that such inequities in digital access can have cascading effects on employment opportunities, educational attainment, and overall quality of life, perpetuating a cycle of poverty among these marginalized populations. As socio-economic inequalities widen, the necessity for targeted interventions becomes urgent.

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